

# CONSUMERS' RESEARCH



## CONTENTS

### Automobiles

Reducing Automobile Driving Hazards..15-17, 23

### Food

Baking Powder.....21-22

Something Constructive on Diet Questions..18-20

### For Christmas

Some General Considerations in the Purchase  
of a Radio for Christmas..13-14, 25

Wrist Watches.....1-4

### For the Home

Coal-Burning Heating Systems.....8-10, 25

Household Ammonia .....11-12

### Miscellaneous

Advice on Feeding a Dog.....5-7

Economic Education, or Propaganda for  
"Causes"?.....Inside Cover, 23

Corrections and Emendations.....24

### Consumers' Digest

In the Groove.....26-27

New Device for Testing Floor Coverings.....27

Ratings of Motion Pictures.....28-29

"Truth" in Advertising.....29

# Consumers' Research BULLETIN

and Consumers' Digest

Issued by

Consumers' Research, Inc., Washington, N. J.

## Scientific and Technical Experts and Editors

F. J. Schlink  
R. Joyce  
E. W. Cheney  
Thomas W. Roberts

## Technical and Editorial Assistants

Helen P. Alleman  
Grace Matthews  
C. P. Cheney  
E. B. Albright

November 1941

Vol. 9

No. 2



**T**HIS NUMBER is one of 9 BULLETINS issued during the year by Consumers' Research which are not confidential. This BULLETIN may be freely discussed with friends. We hope that you will use the opportunity to show them what CR is doing for consumers.

Symbols used to indicate sources of data and bases of ratings:

A—recommended on basis of quality

AA—regarded as worthy of highest recommendation

B—intermediate with respect to quality

C—not recommended on basis of quality

cr—information from Consumers' Research's own tests or investigations

1, 2, 3—relative prices, 1 being low, 3 high. Note that price and quality are completely differentiated in CR's listings; **a quality judgment is independent of price.**

40, 41—year in which test was made or information obtained or organized by the staff of Consumers' Research.

• • •

Responsibility for all specific statements of fact or opinion at any time made by Consumers' Research lies wholly with the technical director and staff of the organization.

Please send notice of any change of address at least one month before it is to take effect, accompanying your notice with statement of your old address before the change. Duplicate copies cannot be sent to replace those undelivered through subscriber's failure to send notice, except at the regular price for orders of such material as back issues.

Note: For a detailed account of CR's early history, policies, and information as to the answering of special inquiries about commodities, subscribers are urged to read the INTRODUCTION TO CONSUMERS' RESEARCH, which is sent on request to anyone without charge.

## Economic Education, or Propaganda for "Causes"?

**T**HOSE OF OUR READERS who were able to give some time and study to the review of Professor L. J. Gordon's book *Economics for Consumers*, in the April 1941 BULLETIN, entitled "Welfare Economics vs. Consumer Welfare," may remember that the reviewer asked whether the legitimate ends of education were being served by such propagandizing as that book contained. In this connection it is interesting to note that well-qualified economic scholars are lately showing evidence of a return to an acceptance of **objectivity in outlook**—the clinical rather than the propagandizing attitude—on the part of teachers and writers in economics, in respect to the problems of economic values and value-judgments.

There is growing, too, a recognition of a fact long accepted, before 1930-40, by economic writers and teachers, viz., that there is an essential fallacy in any attempt to combine economic partisanship for planned society, social and economic regimentation, and various left causes with teaching and writing in the field of economic science. (Until very recently, all sorts of leftist organizations and causes were in high favor among teaching economists and sociologists, especially in big-city and educationally "progressive" high schools and universities.)

A strong and very well-expressed appeal for a return to the scientific point of view on the part of economic specialists is found in the following quotations from the presidential address by Dr. Frederick C. Mills, of Columbia University, before the American Economic Association at its annual meeting on December 27, 1940:

I do not believe that a science can assume responsibility for choosing among ends, and for setting up scales of preference in its discussion of the objectives of social action, without introducing into systems of thought the support of given ends. This is not to deprecate the maintenance of rights to personal choice or the espousal of causes by individuals. . . . But the heart of science, as a method of observation, a means to understanding, and an attitude toward the universe, is lost when science itself becomes a protagonist of ends. . . .

In thus repudiating protagonism and partisanship I am far from proposing that we close our eyes to values and value judgments. . . . Our attitude toward them, however, is not that of the preacher of ethics or the social reformer. They are part of the subject matter of inquiry, open to criticism, appraisal, provisional acceptance or rejection. For any value judgment, any setting up of an objective of social action, is a hypothesis. . . .

The two great responsibilities with which each of us is charged today—to our continuing discipline and to the urgencies of time and place—can best be met by the economist who serves as economist, not as defender, advocate, disciple, or special pleader.

In the consumer field (as also in the field of labor economics), economists and sociologists have been particularly prone to adopt strong, even militant, advocacies of a point of view or support of

[Please turn to page 23, column 1]

CONSUMERS' RESEARCH BULLETIN, issued monthly, except during July and August, by Consumers' Research, Inc. Editorial and Publication Offices, Washington, N.J. Single copy 30c. Subscription price (including Annual Cumulative Number) \$3 per year, U.S.A.; Canada and foreign, \$3.50. For libraries, schools, institutions, etc., a special subscription of nine monthly BULLETINS (October-June, inclusive) is available at \$2; Canada and foreign, \$2.50. Entered as second-class matter November 9, 1934, at the Post Office at Washington, N.J., under the Act of March 3, 1879. Copyright, 1941, by Consumers' Research, Inc., Washington, N.J. • • Printed in U.S.A. • • CONSUMERS' RESEARCH BULLETIN is on file in many public libraries and is indexed in Industrial Arts Index.

# Wrist Watches

With Notes on Buying and Using a Watch

**A**CCORDING to a recent radio announcement, a certain make of watch has been adopted by a famous ball club as its "standard timepiece." Presumably the idea is that the ardent supporters of that club regard all the members of the team as sticklers for punctuality in arriving at the game or for practice, and will flock to buy the same make of watch as that used by their idols. It would be hard to imagine a less valid reason (unless it be the endorsement of a movie star) for the purchase of a particular brand of watch or of any measuring instrument, for ball players are not the type of person who would have an especially critical eye for the quality of a timepiece or even much interest in what goes on inside of one. The commercial testimonial is a basis of selection that might be placed high in the list of how **not** to go about making a purchase. In recent years, most consumers have come to understand that many testimonials and endorsements for products are given in return for a fee or for some kind of services, such as supplying the members of a team, club, or social group with free supplies of the product being advertised, or by other obvious means of showing courtesies to the endorser.

## How to Choose a Watch

There can be no doubt that for a person who wants an accurate, dependable timekeeper, a pocket watch is essential, for in comparison with a wrist watch, it gives much better performance. However, the pocket watch for the great majority of users seems to be on its way out, and at present only a small fraction of sales of watches are of pocket watches (the percentages of watch sales are something like 85% for wrist watches and 15% for pocket watches, —some report even higher wrist watch sales). The preference for wrist watches is in part due to their smaller size, and in part to the ease of getting at them when driving or when wearing heavy winter clothing. Women may prefer wrist watches, in part, because their clothing has no pockets, or at least none deemed suitable for carrying a watch. The disadvantages of wrist

In carrying out the test of wrist watches reported in the following article, both men's and women's sizes were included. The tests extended over a period of several weeks and included determination of errors produced by different positions, different temperatures, and those due to simple inability of the watch to give the same timekeeping performance day after day, even when no external conditions were changed. The article discusses care and use of a watch to give best timekeeping performance, and gives hints on the selection of a watch in order to obtain good timekeeping value for the money expended. CR is indebted to Professor C. C. Wylie of the University of Iowa's Astronomical Observatory for the test observations reported. The judgments and interpretations expressed are in part CR's own and in part embody suggestions of Professor Wylie.

watches, nevertheless, are numerous and often very serious. All small movements are much more sensitive than large ones to the effect of temperature changes, humidity, dust, and the stiffening or gumming of the oil.

Readers will perhaps be surprised to note the magnitude of the errors of even the A-rated watches. Very few consumers are aware of the large errors that necessarily go with small watches, and in those cases where someone boasts of the fact that his watch keeps time to the second, unless it is a watch clear outside of the price and quality class of those reported in this study, it may safely be assumed that the smallness of the error is the result of the fortunate compensation of one or more errors by others. The watch may be badly off at some part of the day or week, but perhaps at the time when it was observed opposing causes of error have brought the watch back close to correct time. Suffice it to say that among wrist watches, one which keeps time at all times of the day, week in and week out, to better than 10 or 15 seconds per day is an exceptionally good timepiece, and there is no need to ask the jeweler to adjust or regulate it more closely.

Consumers who are buying a watch of any kind for utility rather than as an ornament should take pains to avoid anything fancy or unusual in style or mechanism. The special types and arrangements of movements or dial sometimes offered in this way often have a short-lived vogue and frequently produce unexpected difficulties with respect either to ease



of repair or accuracy of timekeeping. Odd-shaped crystals can be a serious bother and expense in replacement and fitting, and with any sort of unusual watch, it frequently takes the watchmaker longer to find out the trouble and longer to make the repair, with the necessary result that the watchmaker's charges are higher than they would be otherwise.

Many consumers judge a watch by the number of jewels it contains, and it is true that an increase in the number of jewels tends to make for longer life, but in a wrist watch for general purposes, and with the present practice of not expecting watches to last half a lifetime or more, the difference between seventeen and seven jewels is probably not worth much to most consumers. At any rate, the movement with the higher number of jewels should not as a rule be bought unless it is really a first-grade movement in other respects, i.e., a movement **guaranteed** on a money-back basis to perform accurately within a given number of seconds a day and actually adjusted to run accurately in different positions and at different temperatures and to be corrected for isochronism, the error evidenced by a watch's running at a considerably different rate when fully wound up from its rate when partly run down. When one is buying a good pocket watch, short of the railway trainman's class of watch, it is safe to assume that the seventeen-jewel sixteen-size watch is inherently capable of keeping practically as good time as the 21-jewel watches. However, the manufacturers do adjust their 21- and 23-jewel watches more carefully and spend more time over the final adjustment, so that if the additional cost is not a matter of serious import, somewhat better timekeeping will probably be had, on the average, with movements having the higher numbers of jewels.

The wise watch buyer will, as a rule, prefer to buy from a store which specializes in watches and jewelry, particularly one that employs a watch repairman on the premises. Department-store watches tend to be of a poorer grade, sometimes very poor grades indeed, and the department-store trade is commonly wont to sell watches mainly on the basis of the attractiveness of the case or the number of diamonds or other jewels with which it may be studded, and other non-essentials. Department stores also have a way of selling "nameless" watches where the maker's responsibility is practically impossible to establish. The watch, of course, has a name of a sort, but even persons in the trade

are often at a loss to know what maker out of scores in the field might have assembled it; and the name may even vary with different sales promotions in the same store.

Most women perhaps are satisfied with a lower accuracy of timekeeping than men. If a woman's work is such that she needs a watch that can be relied on to a fraction of a minute a day, she should certainly buy one of the larger sizes of women's wrist watches, and if she wants the very best wrist watch available for timekeeping, she probably would best buy a man's watch in one of the smaller sizes. All the chronic troubles so well known to wrist-watch owners, such as sudden stopping because of a speck of dust or lint, or sudden gaining of several minutes a day because of the contact of two coils of the hairspring, are reduced in the larger-sized wrist watches and become almost negligible in the still larger pocket watches. The very small wrist watches are extremely sensitive to specks of dust or lint, as a result of which they may stop for a time and then restart, with obvious misleading results as to indication of time and serious danger of missing a train or appointment. Such watches also are susceptible to stopping at low room temperatures, as on a cold night, which would make no difficulty at all for a watch of large size, other than a moderate temperature error.

#### Care of a Watch

A wrist watch, especially a woman's wrist watch, will run better and need cleaning less frequently if it is not worn in bed, for the lint introduced into the case and ultimately reaching the sensitive parts of the movement is a serious factor. A really good timekeeper should be wound only once each day and preferably at the same hour each day, for irregular winding increases the isochronism error already mentioned and tends to cause other troubles of irregularity of running.

#### CR's Test of Wrist Watches

Because of the popularity of wrist watches at the present time, CR's test was confined to watches of this type. A total of 59 wrist watches was subjected to tests for timekeeping accuracy. (No watches of the very smallest sizes were included.) The constancy of timekeeping performance of the watches was compared at thermostatically controlled temperature of 92°F, with the watch in a horizontal position, face up, with their performance about a week later un-



der the same conditions. The rate of the watch is the amount by which it gains or loses, per day. The change of rate is the variation or irregularity in the daily error, and it is very important for the consumer to distinguish between these two characteristics. If a watch is gaining or losing about 30 seconds a day and the gain or loss of time is uniform within a second or two day after day, it is evident that the watch is a potentially very good timekeeper, for the jeweler can satisfactorily correct, by adjustment of the regulator arm (or, in exceptional cases, of certain screws on the balance) any steady loss or gain of time. On the other hand, if the gain is not uniform under different conditions or suffers irregular and unaccountable variations from day to day, no amount of regulation can give a small daily rate, i.e., can make the watch a good timekeeper. The temperature error is more important with wrist watches than with pocket watches, because in practical use wrist watches are subject to wider variations of temperature. CR's temperature or compensation test included a recording of rates at 92°F and 48°F with the watches in horizontal, dial-up position.

All watches are subject to some degree of change of rate with position, and the position error is defined as the difference or change of rate when the watch is in a vertical position as compared with the horizontal position; the position adjustment is important for wrist watches since they may be in almost any position when in use. Differences in rate were determined with the watches running at a given temperature of 70°F, but in two different positions. In practice, all of the sources of error in a watch may combine to increase the error at any given time, so that for the purpose of rating the watches, the sum of the three errors (i.e., errors found in the constancy of rate test, temperature test, and position test) were taken as the measure of the deviation from good performance. Since no very high standard of performance in timekeeping is to be expected from wrist watches (and even if it were to be

achieved when the watch was new, it would shortly be lost with thickening of the oil and intrusion of dust into the movement), the allowance for error given these watches has been extremely generous. This may seem strange to anyone who has not by actual test against a standard timekeeper discovered the magnitude of the errors of watches and their variations from hour to hour and from day to day.

In the listings, a watch is rated A when its cumulated maximum error was between the

limits of 13 seconds to a little over 3 minutes a day. For watches rated B, the maximum error was from 3 minutes 20 seconds to 6 minutes 30 seconds. The C. Not Recommended group included some watches which stopped and others which had maximum errors between 7 and about 13 minutes.

Failure to run has not been heavily rated against a watch be-

cause this can often happen due to a purely accidental condition such as a speck of dust at a critical point in the movement.

It is worthy of note that in the present study the highest-priced watches tested in a given make gave in some cases poorer performance than less expensive watches of that make. It also happened that the watch in the test which gave the poorest results was priced at almost the same figure as the one which gave the best results, and the watch that gave the best results of all in the test sold at about half the price of a watch of one of the best makers which had only mediocre timekeeping qualities. This again exemplifies a point which Consumers' Research has often stressed, that price does not necessarily indicate quality. In this case we have the additional important information that even within a given make considerable differences in price may reflect no dependable difference in quality or performance whatever.

Prices shown are the actual retail prices at which the particular watches were offered at the time the tests were begun. They do not necessarily represent current retail prices or, of course, the prices in all stores selling the brands tested. The watches in the test, with the ex-



A



B

A—The preferred type of wrist watch. B—One style of watch not to buy if a good timekeeper, easily repaired and with good resale value is wanted.

ception of *Elgin*, *Hamilton*, and *Waltham*, had movements which were made in Switzerland, or were made of Swiss-manufactured parts.

### Men's Wrist Watches

#### A. Recommended

*Elgin* (Elgin National Watch Co., Chicago) 4 watches tested: one 15-jewel at \$29.75, one 15-jewel at \$24.75, one 7-jewel at \$21.75, one 7-jewel at \$21.50. Excellent performance on consistency (constancy of timekeeping at constant temperature and position) and good performance on temperature test. One of the 4 tested had a 3-minute position error; the other 3 were satisfactory in this respect.

*Girard-Perregaux* (Distrib. Jean Graef, 9 Rockefeller Plaza, N.Y.C.) 2 watches tested: one 17-jewel priced at \$37.50 and one at \$40. Both watches showed excellent and consistent performance on all three tests.

*Hamilton* (The Hamilton Watch Co., Lancaster, Pa.) 6 watches tested: three 19-jewel at \$52.50, one 17-jewel at \$47.50, one 17-jewel at \$45, and one 17-jewel at \$37.50. This make ranked highest in performance on consistency and temperature of all watches tested. One of the 6 had a 2-minute position error; the other five were satisfactory in this respect.

*Waltham* (Waltham Watch Co., Waltham, Mass.) 2 watches tested: two 17-jewel at \$28.50 each. Excellent performance on all three tests.<sup>1</sup> One of the *Waltham's* gave the best performance of all the 59 individual watches in the test.

#### B. Intermediate

*Bulova* (Bulova Watch Co., 630 Fifth Ave., N.Y.C.) 7 watches tested: three 17-jewel at \$24.75, one 17-jewel at \$27.50, one 17-jewel at \$33.75, one 17-jewel at \$37.50, and one 21-jewel at \$39.75. Two of the watches failed to run, 4 showed good performance in all tests, and 1 showed rather large temperature and position errors.

*Croton* (Distrib. J. Horowitz & Son, 48 W. 48, N.Y.C.) 4 watches tested: all 7-jewel, priced at \$8.75, \$10.75, \$15.75, and \$16.75. \$15.75 model showed splendid performance in all 3 tests, ranking second among all the 59 individual watches in the test. The \$10.75 and the \$8.75 models performed well in consistency and position tests, but showed errors of 4 or 5 minutes on the temperature tests. The \$16.75 model showed a 2-minute position error and a 4½-minute temperature error, and was somewhat inferior to the other models in the consistency test. The low-priced watches of this make would appear to be exceptionally good buys in the low-price field, and compare favorably with many watches at considerably higher prices.

*Gruen* (Gruen Watch Co., "Time Hill," Cincinnati, Ohio) 5 watches tested: all 17-jewel, priced at \$29.75 (2), \$42.50, \$47.50, and \$50. This make showed the widest variation in performance of any tested. One, the \$50 model, performed well in the tests. One of the \$29.75 models gave poor performance, having a 6-minute error in both position and temperature tests.

#### C. Not Recommended

*Westfield* (Bulova Watch Co.) 5 watches tested: three 7-jewel at \$14.75, two 17-jewel at \$19.75. Sold as "un-

adjusted." This make gave the least satisfactory performance of the men's watches. All showed from 4- to 5-minute temperature error, and 3 of the 5 showed about a 2-minute position error.

### Women's Wrist Watches

#### A. Recommended

*Girard-Perregaux* (Distrib. Jean Graef) 5 watches tested: all 17-jewel, priced at \$28, \$35 (2), \$37.50, and \$45. Three gave excellent performance on consistency and temperature tests, 1 showed a 2-minute temperature error, and 1 stopped at 48°F in the temperature test.

*Hamilton* (Hamilton Watch Co.) 4 watches tested: all 17-jewel, priced at \$40, \$45 (2), and \$60. Three gave excellent performance in all tests, and on the average gave the best position adjustment of any woman's watch tested. The highest-priced model did not run.

#### B. Intermediate

*Bulova* (Bulova Watch Co.) 8 watches tested: seven 17-jewel at \$24.75 (2), \$27.75, \$33.75 (2), \$37.50, and \$39.75; one 21-jewel at \$42.59. These watches were not of uniform quality. Seven performed well on consistency test, 5 performed well on temperature test, but only 2 performed well on position test.

*Elgin* (Elgin National Watch Co.) Four 15-jewel watches tested: two at \$24.75 and two at \$29.75. Performance similar to that of *Bulova's*. Position adjustment was better, temperature adjustment not so good. One \$24.75 *Elgin* showed a 5-minute temperature error, the largest recorded for any of the women's watches tested.

*Westfield* (Bulova Watch Co.) 3 watches tested, one 7-jewel at \$17.75, and two 17-jewel at \$19.75. These watches showed very uniform performance, falling only a little outside the limit allowed for B watches. They did well on the consistency test, but did not perform satisfactorily on the temperature and position tests. In view of the unusual degree of uniformity in their performance, the fact that they were honestly sold as "unadjusted," and the fact that women's wrist watches cannot be expected to show a very high degree of accuracy, reliability being more important, these watches have been given a B rather than a C rating.

For those desiring more information on the general subject of buying watches, a 5-page, mimeographed pamphlet, "How to Choose a Good Watch," with notes on the economical purchase of secondhand watches and movements, is available from CR for 10c. This article discusses the special problems and difficulties of buying a good watch with the present trend toward smaller and smaller watches and the universal vogue of the inherently poor-timekeeping wrist watches. The information in the article will be of great interest to anyone who is primarily concerned with obtaining a good timekeeper without paying more than necessary. The mimeographed article includes important leads for the person who would like to buy a secondhand watch of first-class quality and good timekeeping potentialities, and it gives some information on the selection of specially fine movements, often obtainable very cheaply, that may be fitted by an expert casemaker into a new or used case. Advice is given on what to avoid in both new and secondhand movements, when good value and reliable timekeeping are wanted.

<sup>1</sup> This recommendation should be considered to apply to *Waltham* wrist watches in the larger sizes only; the smaller sizes were not tested.

# Advice on Feeding a Dog

## Including a Report on Canned Dog Food

**C**ANNED DOG FOODS made their appearance over 15 years ago. The packers of horse meat were the first to begin the canning of dog food for commercial purposes. Meat packers followed their example when it was found that dog food provided a ready outlet for meat scraps and various organ meats, such as lungs, liver, kidneys, spleens, and the like (some of which human consumers should eat for better health, but as a rule reject).

The rise in sales of canned dog food can perhaps be attributed to its convenience for the city dweller who keeps a dog in an apartment. It is particularly easy for those who are unacquainted with the principles of a sound and well-balanced diet, whether it be for human beings or for dogs, simply to open a can and serve, relying on the canner for the character and adequacy of the nutritional content. The possible unhappy results on household pets are thus often overlooked in the interest of convenience. To feed a dog exclusively on canned food is to ignore entirely the nature of his biological inheritance and digestive apparatus.

In an interesting little pamphlet entitled "Feeding the Dog and the Cat," Rudolph H. Schneider, V.M.D., of the Angell Memorial Animal Hospital, Boston, has stated that the dog is essentially a carnivorous animal, and that the principal sources of his food are of the animal kingdom, such as milk,<sup>1</sup> eggs, meats, glandular organs, animal fats, and bone. These substances possess the essential food values in the fresh raw state. Dogs, however, can adapt themselves to alterations in the diet, and many, the study indicates, will thrive on limited quantities of certain vegetables, fruits, and whole-meal bread supplementing the animal foods. Mr. Schneider advised, however, that bread and canned dog foods be fed only sparingly, and warned against the use of pork, and corned, smoked, or canned meats.

That a new problem in dog feeding had made

Not so many years ago, before the days of dog dietitians, canine caterers, and canned dog foods, the family pet was brought up as a member of the family, and fed on scraps from the table. In more recent years, the canned dog food business has been reported to be the second largest user of tin can containers in the food industry. As far back as 1935, there were said to be about 225 brands of prepared dog food on the market.

its appearance with the rise in use of canned food was made clear in an article by Laurence Alden Horswell, which appeared in the May 1937 issue of the American Kennel Gazette. Mr. Horswell pointed out that the problem of feeding a dog so as to keep him healthy and in good spirits was of interest not only to the average pet owner, but to owners of kennels as well. Well-bred puppies, for example, sold to private individuals would not thrive on the wrong food, and would be brought back to the kennel as unhealthy. Even if they managed to survive the wrong feeding program and stayed sold, they proved to be poor advertisements for their breeders. The difficulty was due, it appeared, not to any neglect on the part of the new owners, but to a well-intentioned effort to feed them nothing but "dog food" in the belief that this provided a well-rounded diet for the dogs.

The situation had become so serious that the Committee on Foods of the American Animal Hospital Association, in cooperation with two other organizations, appointed a Committee to establish a method by which dog foods could be tested for their nutritional adequacy, and to establish standards for the foods.

### Standards for Canned Dog Food

One of the outstanding pioneers in its work for consumers, whether canine or human, has been North Dakota. After careful study and analyses of a number of different brands of canned dog food had been made by the North Dakota Regulatory Department, this state adopted definitions and standards, effective December 1, 1936, for dog food, cat food, cat and dog food, and pet food sold in North Dakota.

In a summary of research in this field, the

<sup>1</sup> Dr. Schneider, though he does not say so, must be referring to puppies in his mention of milk as one of the principal sources of food for dogs, since evidently the diet of grown dogs and other adult carnivorous animals living in natural conditions could not include milk.—Editor



Department pointed out that a dog living in a more or less wild, native state where he hunted for his food, would secure the food elements required, in the needed variety. He would, for example, get the muscle tissue, rich in protein; the small bones containing the necessary minerals; various glands and internal organs with their vitamins and minerals; skin and fur for roughage, as well as the grains and grasses that remain partly digested in the freshly killed prey. It is only reasonable to assume, pointed out the North Dakota study, that an artificially prepared dog food should simulate the natural food as nearly as possible, and should consist mainly of meat and meat by-products, supplemented by minerals and vitamins.

The North Dakota standards for canned dog food require that 75% of the protein content be of animal or fish origin, with a minimum of 10% total protein in the product (this means that the contents as a whole must contain at least 7.5% protein of animal origin); a minimum of 2% fat; and a maximum of 1% crude fiber (roughage). The practical significance of the figures for protein content can be judged when it is noted that protein in ordinary dressed fresh fish runs from about 8% to 15%, and in dressed meat from about 15% to 20% of the weight.

The term "dog food" is to be applied to edible fresh and/or frozen or cured meat and/or meat products and/or fish. "It may," states the definition, "contain cereals or other vitamin-containing substances and must contain such cereals, edible accessory food products, edible mineral or vitamin-containing substances provided the presence of any or all of these is indicated on the label." The label of canned dog food must carry the guaranteed analysis, including crude protein (a minimum of 10%); crude fat (a minimum of 2%); and crude fiber (a maximum of 1%). The label is also required to carry a statement of the ingredients used in the manufacture in the order of their preponderance as to weight, and dog food must be packed in cans containing one pound or whole multiples thereof.

The setting of standards by one state is a great impetus to the adoption of standards in other states. In 1938 about 27 states were reported to have had some sort of control and supervision over canned dog food, either under the food laws or the laws applying to feeding stuffs for animals and poultry.

### Home-Prepared Foods

Those dog owners who have, without the benefit of learned advice, successfully raised dogs on table scraps, must have been cheered by an item by Albert Payson Terhune which appeared in a newspaper in May 1937. Mr. Terhune, whose collie dogs are well known to all readers of his books, stated that he had fed hundreds of dogs of many breeds for more than half a century on table scraps, bread and milk, broth with fresh green vegetables in it, and on occasional feasts of beef and mutton bones with plenty of raw or cooked meat sticking to them. He noted that his dogs had thriven on such fare and warned that, of course, poultry bones should always be eliminated from table scraps.

There may, however, be some households in which the table scraps are not available in the type or quantity to supply sufficient food. In that event, or where there is more than one dog, a home-mixed ration may be quite acceptable.

One agricultural professor reported that he was quite successful in raising an Airedale on a commercial poultry mash mixed with liquid buttermilk. A ration of a somewhat similar sort was developed some years ago, for use in dog feeding, by the Alabama Polytechnic Institute at Auburn, Alabama. The proportions in this mixture are as follows:

Yellow corn meal.....	3 lb 8 oz
Wheat bran.....	1 lb
Wheat middlings.....	2 lb
Meat scraps (55% to 60% protein).....	1 lb
Fish meal (55% to 60% protein).....	1 lb
Skim milk powder or dried buttermilk...	1 lb
Alfalfa meal or alfalfa leaf meal.....	3 oz
Bone meal.....	3 oz
Salt.....	1-½ oz

It is important that this ration should not be fed after it becomes stale or spoiled.

To reduce the labor of preparation, several dog owners may arrange so that one will make up sizable amounts of the mixture, and then divide up the finished product. The ration may be fed dry or mixed with water or skim milk; or it may be moistened with water, then boiled or baked.

Since this formula was first called to the attention of CR subscribers, several have reported that they have used it successfully. One subscriber wrote: "Mixing your own is a nuisance, but it is worth it; for it has made our

dogs happy and well, as no food we found on the market did."

### New Feeding Studies

Some very interesting biological feeding studies with dogs have been made recently by Dr. Agnes Fay Morgan of the University of California. A few of the highlights of Dr. Morgan's studies include her discovery that vitamin A deficiency both lowers reproductive power and causes an eye disease that results in blindness. A casual inspection of the reported make-up of most commercial dog foods indicated that vitamin A was likely to be present only in small amounts. Liberal feeding of foods containing vitamin A to dogs is believed to increase resistance to infections. Dr. Morgan's experiments in dog diets revealed that prunes afforded an excellent practical source of vitamin A. In these same studies, furthermore, it appeared that dogs fed strictly on a canned food diet were likely to develop a vitamin B deficiency, since this particular vitamin is one that withstands heat poorly and so is likely to be low in all canned foods. Whole grains and grain embryo are rich sources of this vitamin, which is needed in three to five times the usual amount for success in reproduction. The amount of vitamin B needed by dogs is governed by the consumption of non-fat calories rather than by a dog's weight.

Dr. Morgan also considered that dogs cannot obtain adequate nutrition from the commercially available meat diets alone, and she favored certain supplemental foods as sources of needed vitamins in a well-balanced dog ration. These include liver oils, wheat germ, rice bran, dried brewery yeast, crude cane molasses, milk, eggs, green vegetables, tomatoes, carrots, and alfalfa as useful vitamin sources. Necessary chemical compounds and protein are found in lean meat, milk, and eggs. Minerals are obtained from milk and bone meal. Iron and blood-making material are secured from liver, kidney, red meat, egg yolk, apricots, peaches, prunes, and green vegetables. (Uncooked dried fruits must not, of course, be fed, as they swell enormously in the moisture of the alimentary canal, and are thus likely to cause great intestinal distress or even obstruction.)

Raising a dog requires the same attention to the principles of nutrition and health as is required in raising a child to normal, healthy adulthood. It can't be done by any means so simple as just feeding canned "dog food."

Canned dog food should not be looked upon as the basis of a daily all-round, all-inclusive dog diet. It should be kept on the emergency pantry shelf for an occasional feeding when there just isn't another thing in the house. For such a function, canned dog foods undoubtedly have their place.

A number of dog foods were analyzed by one of Consumers' Research chemist consultants, for compliance with the North Dakota standards, and in accordance with the testing procedures followed by the North Dakota State Laboratories Department. Products rated B. Intermediate met the North Dakota Standards for Canned Dog Food. In view of considerations discussed in the body of the article, no canned dog food is given a rating higher than B.

Ratings are cr41.

### Ratings of Canned Dog Foods

#### B. Intermediate

*Calo* (Calo Food Products, Inc., Oakland, Calif.) 23c for three 15-3/4-oz cans (equivalent to 7.8c per lb). 15-3/4 oz is not a proper weight for a can of dog food, and with most consumers such a weight would be in unfair competition with a true 1-lb can. The smaller can, if not identical in exterior dimensions, would, of course, resemble the 1-lb can so exactly as to be undistinguishable except by close inspection. Even for a person accustomed to reading labels carefully, such an off-standard weight presents unreasonable difficulties in mental, or even written, arithmetic. **2**

*Ken-L-Ration* (Chappel Bros., Inc., Rockford, Ill.) 25c for three 1-lb cans (8-1/3c per lb). **2**

*Pard* (Swift & Co., Chicago) 25c for three 1-lb cans (8-1/3c per lb). **2**

*Red Heart, Diet A* (John Morrell & Co., Ottumwa, Iowa) 25c for three 1-lb cans (8-1/3c per lb). **2**

*Red Heart, Diet B* (John Morrell & Co.) 25c for three 1-lb cans (8-1/3c per lb). **2**

*Red Heart, Diet C* (John Morrell & Co.) 25c for three 1-lb cans (8-1/3c per lb). **2**

*Hill's Dog and Cat Food* (Hill Packing Co., Topeka, Kans.) 30c for three 1-lb cans (10c per lb). **3**

*Perfection* (Perfection Foods Co., Battle Creek, Mich.) 30c for three 1-lb cans (10c per lb). **3**

#### C. Not Recommended

*Strongheart Rations* (Doyle Packing Co., Inc., of New Jersey, Newark, N.J.) 5c for one 1-lb can. Protein and fat content, below N. Dak. standards. **1**

*Doggie Dinner* (Loudon Packing Co., Terre Haute, Ind.) 23c for three 1-lb cans (7-2/3c per lb). Fiber content, slightly in excess of maximum set by N. Dak. standards. **2**

*Rival* (Rival Packing Co., Chicago) 25c for three 1-lb cans (8-1/3c per lb). Fat content, below N. Dak. standards. **2**

*Thrivo Dog and Cat Food* (Modern Food Process Co., Philadelphia) 17c for two 1-lb cans (8-1/2c per lb). Fiber content, in excess of maximum set by N. Dak. standards. **2**

## Coal-Burning Heating Systems

A Report on Magazine-Feed Boilers for Anthracite Coal, on Stokers and Boilers for Anthracite and Bituminous Coal

THOSE WHO have no objection to going to the cellar once a day or so and who like a little useful exercise about the house, will find that coal stokers give well-regulated, generally satisfactory heating. On the whole, stoker heat is furnished more economically than heat from an oil burner. The amount of time involved in caring for the heating of a home by stoker firing may vary between the limits of 10 to 20 minutes per day when clinkers must be removed daily and a hopper filled, to practically nothing when a bin-feed, ash-spillover type of stoker is used with a pit large enough to hold a season's output of ashes.

### Magazine-Feed Boilers for Anthracite Coal

Midway in convenience between a hand-fired boiler and furnace and a stoker-fired boiler are magazine-feed boilers. These boilers have a large storage chamber for coal so placed that the coal slides slowly down upon and along an inclined grate, as it is burned. The magazine holds sufficient coal to last one or two days, except in very cold weather, but has to be filled through a door rather too high above the floor to be convenient (assuming that the furnace is installed with its base at the cellar floor level, as is usual). With this type of boiler, a draft regulator controlled from a thermostat in the living quarters will maintain as high a degree of temperature uniformity as will be required in the average home under most conditions. Such an electrical thermostat should be so installed that, in case of electrical failure with the boiler drafts open, the mechanical pressure or temperature regulator of the boiler is free to function so as to close the drafts and prevent serious overheating.

Wherever there is a possibility of prolonged or frequent failures of the electric power service, magazine-feed boilers offer a distinct advantage. Their simplicity and reliability are important assets, particularly at this time when there is considerable doubt or uncertainty regarding the availability of parts and servicing for the more complex mechanisms of stokers and oil burners.

The over-all combustion efficiency obtainable with magazine-feed boilers is not so great as with stoker-fired boilers, but the actual cost of operation generally is slightly less, due to the added cost of electricity for operating the motor of the stoker. Magazine-feed boilers are much cheaper than boiler and stoker in first cost, but if the proper boiler is already installed, it is cheaper to install a stoker as an auxiliary than to purchase and install an entire new magazine-feed boiler.

#### A. Recommended

Select the size of boiler on the basis of manufacturer's recommended load, in terms of square feet of steam or hot water radiation, as the case may be.

*Spencer* (Spencer Heater Div., Aviation Mfg. Corp., Williamsport, Pa.) 1\*

#### B. Intermediate

*Weil-McLain* (Weil-McLain Co., 641 W. Lake, Chicago) Except for the small *M 4* series, this make uses a double grate of which one side can be run alone in mild weather—a method advantageous from the economy standpoint, for the medium-sized house. 1\*

### Stokers

All the stokers rated here are of the forced-draft, under-feed type. While there have been no great improvements in stokers during the last few years, the conditions under which stokers give good and relatively trouble-free service have come to be more widely recognized. Clean coal, free from slate, nails, or other foreign bodies, is essential for good operation of stokers. The air-flow setting of the blower is made by the installer to suit the particular conditions, including the kind of coal used. Either that type of coal should be purchased or the air setting suitably readjusted if another kind is used. Coal for stokers should be of uniform size, for this is necessary to maintain even flow of coal from the hopper into the stoker retort (burner).

Practically all stokers convey the coal to the retort by a screw turning in a tube which the

\* These price ratings are on a basis comparable with price ratings of other complete (boiler and stoker) automatic or semiautomatic coal-burning equipment.



screw fits closely. Operation is intermittent, i.e., when the thermostat calls for heat, the coal feed and air blower are started, to stop again when the thermostat has moved to the no-heat position as the room where it is placed is warmed up. Some stokers feed the coal intermittently during the operating cycle, but most stokers feed the coal continuously—thus avoiding use of a dog-and-ratchet arrangement which needs occasional replacement. A "hold-fire" control is necessary in all stokers to keep the fire from going out. This control makes the stoker operate occasionally even when the thermostat does not call for heat, as in very mild weather.

The bin-feed type of stoker, especially where a straight-line bin-feed arrangement is possible, is more satisfactory and costs little if any more than the hopper type. Hoppers on hopper-equipped stokers are generally large enough to hold one or two days' supply of coal. The door of the hopper should be fitted with a rubber gasket to prevent the escape of dust and fumes. Some stokers can be fed automatically from a coal bin that is far removed from the boiler and stoker. When, with a bin feed, the coal has to pass through a "transfer box," this box will require cleaning occasionally, due to the accumulation of the "fines" of the coal.

With bituminous coal stokers, ash removal is still best done by removing the clinkers once a day manually. With anthracite stokers the ash can be allowed to drop into a can placed in a pit below the burner, or it can be removed by a screw arrangement similar to that which feeds the coal to the retort. The screw pulls the ash into tightly covered ash cans (two should be used). Some provision should be made for signaling when the ash cans are full. The ash-removal mechanism tends to develop more troubles than the rest of the stoker, unless especially well designed. The cost of stokers installed with an ash-removal mechanism is about the same as the cost of digging a pit under the boiler (a small pit, for one ash can—\$30 to \$40).

The stoker should be one with the largest retort that can be properly fitted inside a boiler, since this will give lower air velocities through the retort, lessening fly-ash troubles and impingement of the flame on the crown sheet of the boilers. (The crown sheet is the plate forming the top of the firebox.) When the clearance between retort and boiler walls is less than 3 inches, it is advantageous to have the stoker equipped with a rotating pin or oscillating ring

to remove the ashes from around the edge of the retort.

Although more care is now being taken to supply coal that is free from metal and similar foreign material, a stoker should include provision for stopping the motor or feed screw automatically in case something should jam the feed mechanism. Practically all stokers have a thermal overload-switch in the motor to stop it when it is stalled by overloading. In addition, a shear pin or mechanical release of some sort should be provided to relieve the reduction gears and feed worm of overstrain. A light or other signal to show when a shear pin is broken or a mechanical-relief overload device has operated is a desirable feature. Without such a device, the fire may go out before the obstruction is noticed and removed.

A **guaranteed date of delivery** is very important when buying any stoker these days, for stoker manufacturers are having difficulty obtaining needed materials for manufacture. Such items as stainless steel feed screws, a feature important for long life, may soon be unavailable.

**NOTE:** In cities, towns, or country districts where skilled installation and prompt and reliable servicing are not available for an A. Recommended stoker, preference should be given to a B-rated stoker for which such capable and reliable services are available.

#### Anthracite Coal Stokers

##### A. Recommended

- Electric Furnace-Man*, Series 16 A, JR, and bin-feed series UF (Electric Furnace-Man, Inc., 101 Park Ave., N.Y.C.) **3**  
*Fairbanks-Morse* (Fairbanks, Morse & Co., 600 S. Michigan, Chicago) **3**  
*Motorstoker* (Hershey Machine & Foundry Co., Manheim, Pa.) Has many desirable features. **3**  
*Stokol* (Schwitzer-Cummins Co., Indianapolis) Hydraulic models and *Stokol-Mercury* models (without hydraulic drive). *Stokol-Mercury* models about \$50 cheaper than *Stokol* hydraulic models and judged nearly as good. **3**

##### B. Intermediate

- Cooper* (Cooper & Cooper, Inc., Pittsfield, Mass.) **2**  
*D & E* (Dickson Coal Co., 30 Rockefeller Plaza, N.Y.C.) **2**  
*Freed*, Models C-K, H (Freed Heater & Mfg. Co., Collegeville, Pa.) **2**  
*General* (General Stokers, Philadelphia) The bin-feed model is simply and neatly designed. Also known as the *Newton Coal Stoker*. **2**  
*Iron Fireman*, Standard and De Luxe Models (Iron Fireman Mfg. Co., Cleveland) Probably one of the two best in the B group. *De Luxe* model priced \$50 higher than *Standard*—which makes *De Luxe* price high. **2**  
*Kolstokor Fire-Chief* (Anchor Stove & Range Co., New Albany, Ind.) **2**  
*Link-Belt*, Special and Challenger Models (Link-Belt Co.,

- Chicago, Detroit, Philadelphia) 2  
*Master*, Standard and De Luxe Models (Muncie Gear Works, Inc., Muncie, Ind.) Probably one of the two best in the B group. 2  
*Wards*, Montgomery Ward's No. 281—1392. 2

### Bituminous Coal Stokers

#### A. Recommended

- Anchor Kolstokor*, "Oil Motor" and *Aristocrat* Models (Anchor Stove & Range Co.) *Oil Motor* model, with hydraulic drive, costs about \$30 more than *Aristocrat*. The two models are otherwise much alike. 3  
*Fairbanks-Morse*, Hopper and Bin-Feed Models (Fairbanks, Morse & Co.) 3  
*O. P.* (formerly *Pocahontas*) (Pocahontas Fuel Co., Inc., Cleveland) Ash-removal, bin-feed type; hence, completely automatic. 3  
*Stokol* and *Stokol-Mercury* (Schwitzer-Cummins Co.) The *Stokol* has a hydraulic drive, while the *Stokol-Mercury* has a worm-and-gear drive. 3

#### B. Intermediate

- Hercules*, Sears-Roebuck's No. 42—9064. 1  
*Wards Standard*, Montgomery Ward's No. 281—1334. 1  
*Anchor Kolstokor*, Fire-Chief Model (Anchor Stove & Range Co.) Obtainable with automatic air control at small additional cost—a worth-while feature. 2  
*Freeman*, De Luxe and T-3 Models (Freeman Stoker Div., Illinois Iron & Bolt Co., Chicago) 2  
*Kol-Master*, Challenger Standard Models (Kol-Master Corp., Oregon, Ill.) 2  
*Master* (Muncie Gear Works, Inc.) 2  
*O. P.*, Model HB (Pocahontas Fuel Co., Inc.) 2  
*Wards Supreme*, Montgomery Ward's No. 281—1285. 2  
*Link-Belt*, Challenger and Champion Models (Link-Belt Co.) 3

\* \* \*

The following brands are judged somewhat less desirable than the preceding brands:

- Athens* (Athens Plow Co., Athens, Tenn.) 2  
*Findlay*, Models 20B and 25B (The Bluffton Mfg. Co., Findlay, Ohio) 2

### Boilers

It should be possible to place the retort of an anthracite coal stoker low enough below the crown sheet of the boiler to prevent the flame from impinging on it. For stokers with a feed rate of 15 pounds per hour, the clearance from retort to crown sheet should be not less than 18 inches; with a rate of feed of 25 pounds per hour, minimum clearance should be 20 inches (both figures being based upon grate-areas being normal for the coal feed-rates named). The retorts of some stokers can be mounted below the level of the grates, when this is needed to give more clearance. With most hand-fired boilers, when a stoker is installed, a baffle should be placed over the retort to help in utilizing more of the heat from the coal. The efficiency of all round boilers will be greatly

improved by inserting a baffle just beneath the crown sheet of the boiler.

Plenty of heat-absorbing surface in the boiler, and **long, narrow flue passages** are necessary for good efficiency. Boilers in which the flue passages can be blocked easily by "fly ash" will need relatively frequent cleaning, because practically all stokers produce some fly ash. (Fly ash is the fine dust-like ash particles that float up from the fuel bed, and pass through or are deposited in flues, smoke pipe, or chimney.) Water-tube boilers (in which the hot gases from the fire surround the water, which is in tubes) need to be cleaned less frequently than fire-tube boilers (in which water surrounds tubes through which hot gases pass).

For use with bituminous coal stokers, boilers should have large combustion chambers, to burn efficiently the high combustible-gas content of bituminous coal. Otherwise a considerable amount of the gases that should be burned will be deposited as soot instead; this of course means waste of a part of the heat content of the coal. And, of course, a large area in the boiler of heat-absorbing surface, and flues arranged to extract as much as possible of the heat from the hot gases, are quite necessary for good efficiency.

The clearance between the retort of the stoker and the furnace walls should be at least 3 inches to allow room for the ash to drop into the base of the furnace. If the stoker has a rotating ash remover or similar mechanism for trimming the ashes from the retort, then the clearance can be diminished in accordance with the manufacturer's directions.

### Boilers for Anthracite Coal Stokers

#### A. Recommended

The following boilers are considered to give the best combination of efficiency with ample furnace height and freedom from trouble with clogging due to fly ash. Sectional boilers give better efficiency as the number of sections they have is increased—at least two sections should be used between the firebox and top section, or "steam dome" in a round boiler; and at least two between the front and rear sections in a horizontal boiler.

- Burnham Yello-Jacket*, and *Burnham* No. 1 Series (Burnham Boiler Corp., Irvington, N.Y.)  
*Capitol Red Top*, "A" Series (U. S. Radiator Corp., Detroit)  
*Ideal* No. 7, and *Ideal Redflash* No. 1 Size (American Radiator Div., American Radiator & Standard Sanitary Corp., N.Y.C.)  
*Mills "15"* (H. B. Smith & Co., Westfield, Mass.)  
*Pierce Eastwood* (Pierce Butler Radiator Corp., Syracuse, N.Y.)

[Please turn to page 25, column 1]

# Household Ammonia

**T**HE COMMON, familiar household liquid ammonia (or ammonia water) is available in two types, clear and cloudy. Both types consist of ammonia gas dissolved in water, while the cloudy ammonia liquid contains in addition, small amounts of such substances as soap or added fatty matter. These substances were originally added under the supposition that they had value in preventing or mitigating the roughening or irritating action on the skin of the ammonia as used in water for scrubbing, window-washing, etc. In earlier years, claims for this property were made on the labels, and it is probably because of this early misconception of the value of these added ingredients that some consumers even today hold to the erroneous belief that cloudy ammonia is in some way more desirable than the clear ammonia liquid. The original claims were deemed unwarranted and have been discontinued by many manufacturers; nevertheless, as with other trade customs founded originally upon irrational or incorrect premises, the substances producing the cloud are still added by many manufacturers and serve, no doubt, with uninformed consumers, to impart to the product an element of mysticism and superior value.

The informed consumer, however, will purchase the clear in preference to the cloudy liquid, for the main advantage of ammonia as a household alkali lies in its ability to evaporate quickly and completely without leaving a film or residue, and of course only the clear type possesses this desirable property.

## Uses for Household Ammonia

Ammonia is excellent for washing windows and drinking glasses, and is used as a detergent for removing grease spots from fabrics, such as carpets or clothing (though occasionally the dye may be affected), and washing hairbrushes and combs (1 teaspoonful to a quart of water). Household ammonia and turpentine in equal quantities will remove paint spots from clothing, even though the paint may be hard and dry. A solution of household ammonia in water may also be used to remove the greasy film or "cloud" caused by perspiration and gases and vapors in the air, and thus effectively brighten gold and silver jewelry, china, and



## Which one would you buy?

Having no basis for comparison, most consumers, unfortunately, are likely to choose the product which is in the most attractive package. In this case, the housewife who bought the sample on the left would be favoring her family's budget, for, on the basis of the ammonia it contained, it cost only one-fifth as much as the sample on the right; or looked at from the standpoint of its practical use, it would produce an equivalent solution when only one-third as much of the liquid per quart or bucketful of water was used. The more economical product at the left bore on its label a definite statement of its ammonia content: "Reduced to 8% ammonia for home use." This brand is available in the preferred clear type.

glassware. It is useful, too, in cleaning clogged fountain pens, for which purpose the pen section is allowed to stand in a weak solution for some hours.

The United States Pharmacopoeia defines "Ammonia Water" as an aqueous solution of ammonia containing not less than 9% nor more than 10% by weight of ammonia gas. The ammonia sold for household use, however, may actually contain a much lower percentage of ammonia. The State of New Hampshire requires by law that household ammonia contain not less than 8% ammonia gas. Prior to the enactment of this state law, very weak dilu-



tions were customarily sold to housewives as ammonia; some ammonias were grossly fraudulent in that they contained only enough ammonia to give the product a slight odor.

Ammonia, in concentrations of 5% or more, is a dangerous caustic. The bottles must be clearly labeled "Poison," and the labels must also include directions for treatment in case of injury. Special precautions must be taken that the bottles are never left within the reach of children and are not carried about or handled by them, with the risk of breakage and serious burns of the skin or eyes.

In the following listings (based on recently published results of tests by the New Hampshire State Board of Health, Charles D. Howard, Director of Division of Chemistry and Sanitation),<sup>1</sup> the weakest product contained only 3% ammonia and was of one-fourth the strength and yet actually was more than twice as expensive as the strongest, which contained 12.5% ammonia. (It does not follow, however, that in all cases, the stronger ammonias are cheaper, or more economical, than the weaker ones.) Over one-third of the brands failed to meet the state's requirement of 8% strength. This well illustrates the importance of technical controls over even the simplest commercial products and exemplifies the general casualness of manufacturers with respect to the character of their products, even when sent to states in which they are subject to legal action when falling below a fixed standard. In this particular test, the cheapest A. Recommended ammonia actually cost (for equal strength) only about one-fifth as much as the poorest.

The majority of the following brands can be purchased either in the clear or cloudy type. Most of the samples tested, which were typical of those offered in the market, were of the cloudy type. When not of the cloudy type, or when the type was not reported by the chemist, an asterisk (\*) appears at the end of the listing. Household ammonia of the cloudy type is not recommended for uses, such as cleaning windows, where the slight residue it leaves would be objectionable.

Ratings are cr41. Prices given are per quart, followed in parentheses by the calculated cost

per equal units (1 quart, 40% solution, for comparative purposes) of ammonia content.

#### A. Recommended

<i>Sunny Day</i> (First National Stores, Somerville, Mass.)	9c (37c), 9.6% ammonia.	1
<i>White Sail</i> (A & P stores)	7c (30c), 9.4% ammonia.	1
<i>Liberty</i> (Liberty Bleach Works, Berlin, N. H.)	15c (63c), 9.5% ammonia.*	2
<i>Majestic</i> (Wonder Products, Laconia, N. H.)	15c (71c), 8.4% ammonia.*	2
<i>Salem</i> (Salem Chemical Co., Salem, Mass.)	20c (64c), 12.5% ammonia.*	2
<i>Superba</i> (Milliken Tomlinson Co., Portland, Me.)	19c (74c), 10.3% ammonia.	2
<i>White Flower</i> (Holbrook Grocery Co., Nashua, N. H.)	15c (56c), 10.8%.	2
<i>Everett</i> (C. M. Kimball Co., Everett, Mass.)	22.4c (84c), 10.5%.	3
<i>IGA</i> (Independent Grocers Alliance Distributing Co., Chicago)	25c (98c), 10.2%.	3
<i>Nation Wide</i> (Nation Wide Service Grocers, Brockton, Mass.)	32c (\$1.36), 9.4%.	3
<i>C. C. Parson's</i> (Parsons Ammonia Co., Inc., N.Y.C.)	18c (80c), 8.9%.	3
<i>Red Cap</i> (C. M. Kimball Co., Everett, Mass.)	22.4c (86c), 10.4%.	3
<i>Sawyer's</i> (Sawyer Crystal Blue Co., Boston, Mass.)	32c (\$1.35), 9.5%.*	3
<i>Super</i> (Radio Foods Corp., Lawrence, Mass.)	19c (88c), 8.6%.	3
<i>Superior</i> (Cody Chemical Co., Manchester, N. H.)	48c (\$2.11), 9.1%.*	3

#### B. Intermediate

<i>Elegant</i> (Philip Porter Co., Keene, N. H.)	13c (66c), 7.9%.	2
<i>Sunny Rose</i> (Sunny Rose Stores, Boston, Mass.)	12c (66c), 7.3%.	2
<i>Brimfull</i> (Kitchen Products, Inc., Chicago)	19c (\$1.01), 7.5%.	3

#### C. Not Recommended

<i>Ace</i> (W. C. Brate Co., Albany, N. Y.)	10c (\$1.14), 3.5%.	3
<i>Columbia</i> (Columbia Chemical Co., N.Y.C.)	12c (89c), 5.4%.	3
<i>Sand B</i> (Alfred F. Dube Co., Berwick, Me.)	20c (\$1.36), 5.9%.*	3
<i>Samson's</i> (John Danais, Manchester, N. H.)	16c (\$1.04), 6.2%.*	3
<i>Savol</i> (Savol Bleach Water Co., E. Hartford, Conn.)	15c (\$1.09), 5.5%.	3
<i>Surprise</i> (Seeman Brothers, Inc., N.Y.C.)	11c (86c), 5.1%.	3
<i>Varick</i> (Francis H. Leggett & Co., N.Y.C.)	18c (\$1.84), 3.9%.	3
<i>Williams</i> (R. C. Williams Co., Inc., N.Y.C.)	11c (\$1.46), 3%.	3

<sup>1</sup> This Board, which conducts competent and careful tests on a variety of articles used by consumers and reports on numerous matters affecting questions of health, is one of the most effective consumer-protective bodies of all the State governments. It will serve well as a model for the setting up of corresponding activities in other states (of which a large majority have no effective consumer-protective work of any kind), both from the standpoint of the competence of its work and the economy and skill with which its studies are made available to New Hampshire's consumers. \*Other important topics which have been treated in the New Hampshire Board's pamphlets in recent months are: Soft drinks containing caffeine, mercury in hat felt, fraudulent vanilla extract, an obesity cure, pollution of water supply, hair dyes, poison ivy. \*\*\* With respect to tests of ammonia, the New Hampshire bulletin notes that most states have no laws governing the sale of this very commonly used preparation, though a few have a requirement establishing a low (5%) minimum ammonia content. It is further noted that since the adoption of regulation for this product in New Hampshire, the situation there has vastly improved.

## Some General Considerations in the Purchase of a Radio for Christmas

With Special Consideration of the Problem of the new FM Radio Receivers

BY THE AVERAGE or fairly well-to-do American the console radio is widely regarded as an ideal Christmas gift. Since the time for Christmas shopping is daily growing shorter, a few words of advice to those planning to purchase a new radio receiver may be in order at this time.

If the purchase of a console-model receiver is planned, one should consider carefully whether a straight radio, a radio-phonograph combination, an FM-AM<sup>1</sup> radio receiver, or an FM-AM radio receiver combined with a phonograph is wanted, before shopping for a set. Salesmen, especially in the cities and in large radio stores, are almost certain to try "selling up" (i.e., attempting to induce the buyer to purchase a more complicated and more costly set than he originally intended), and it is, therefore, well for the consumer to start out with a clear understanding of what he wants, and to stick to that decision in spite of shrewdly worded inducements to buy something better or, rather, more expensive.

One should, for example, decide in advance whether record-playing equipment is really wanted. Looking backward for a moment, one is reminded that in the late twenties or early thirties a large number of radio-phonograph combinations were sold. After the novelty had worn off, the record-playing equipment of these sets was forgotten and fell into disuse. Remembering that earlier experience, one should not be too easily convinced of the necessity or importance of built-in phonograph equipment.

The prospective purchaser should have in mind that any good console set can be easily and fairly inexpensively converted to record playing by attaching a record player—a unit containing a turntable, motor, and phonograph pickup—available at most large radio stores and supply houses. Automatic record players are also available mounted in a small cabinet, about 12 inches high, and can be used in the same way as an ordinary non-automatic record player. Since a good non-automatic unit can

be purchased for about \$20 (being sure to avoid the "wireless" or "mystery" types) and can be connected to the receiver by a serviceman for a dollar or two, it is easy to see that this method of obtaining phonograph reproduction is likely to be a good deal cheaper than the purchase of a radio-phonograph combination.

With separate radio and phonograph units, if either new radio or new phonograph equipment is needed, because of technical advances in the equipment (which are actually in development in the present period), it may be purchased at any time without need to replace the complete radio-phonograph equipment. The main objection to this "two-piece" approach to the problem is that the radio and record player will consist of two units of furniture instead of one, complicating to a certain extent the arrangement of the room. However, persons who are really enthusiasts for record playing will have some sort of cabinet for storing the records, and it may be possible to house the record player or automatic changer unit in this cabinet.

In considering the purchase of phonograph equipment, either in combination with a radio or as a separate attachment, whether or not to buy an automatic record changer is often a problem. The automatic changer is convenient, but its effect on the records is likely to be somewhat more damaging than changing by hand. Record wear is often greater since it is difficult to obtain a needle that will not cause too much groove-wear and will stand up sufficiently long for convenient use in a changer where the consumer often expects one needle to play hundreds of records. (The "permanent" type of needle, of course, eliminates the routine of needle-changing after every load of discs.) Even the sapphire needles so highly praised by the advertisers have several disadvantages, which of course are not mentioned in the advertising. They are, for example, easily chipped and, if chipping does occur, can easily ruin a number of good discs before the damage is noted. Record changers are complex mechanisms, rather easily damaged, and are expensive to repair. Hand changing is quicker, more reli-

<sup>1</sup> The abbreviations AM and FM signify respectively amplitude modulation and frequency modulation. AM is the type of broadcasting now in customary use on the large networks. FM is the new type of "staticless" radio, working on a system developed by the noted radio inventor, Major E. H. Armstrong.

able, and involves no special mechanical problems.

### The New Development in Radio—FM

Frequency modulation (FM) has been receiving wide publicity of late—wider publicity by far than its actual state of development in practical service to large numbers of consumers appears to warrant. FM does have advantages in the matter of reducing noise or static and in helping to better the quality of reproduction of radio programs as compared to the conventional amplitude modulation (AM) system.

A leading New York newspaper, however, recently issued an article on FM broadcast receivers, which offered evidence to show that some listeners in Maine, well located for receiving FM broadcasts from the station on Mt. Washington, were noting the new-fangled FM with undeniable apathy. The newspaper's article reported that Maine listeners have become so accustomed to static and noisy reception that they accepted this condition without complaint or question, while the better reproduction of which FM is capable appeared to have little appeal since, as one serviceman is said to have stated: "People around here don't think of good quality. They want the news, Amos 'n' Andy, Major Bowes and the Quiz Kids, 'specially the news." For reception of these programs, of course, the high fidelity afforded by FM is not usually important to the listener.

In CR's opinion this attitude on the part of radio listeners is not at all likely to be peculiar to the good Maine Yankees. The article cited says: "In the rural districts...an immense amount of education must be carried on by the proponents of FM before the people can be made to appreciate its merits." The difficulty is, of course, that money for this "education" must come largely from commercial program sponsors, who are not likely under present trying and troubled conditions to want to undertake the necessary expensive pioneering, especially as the present standard (AM) system of broadcasting is getting the desired results as far as its use as an advertising medium is concerned. (So long as AM brings in the customers for *Alka-Seltzer* and *Wheaties* the commercial advertisers will probably see no convincing reasons for plunging into a new medium with a conjectural audience of unknown responsiveness to the appeal of their products.) The shortage of materials caused by the defense program may also produce depressing results

on future amounts allotted to advertising, since increasing the volume of their sales to the public is about the last thing manufacturers in a good many lines want to do just now. Shortage of materials is also causing a curtailment in the production of receivers (and doubtless of transmitters), thus holding back the speedy increase in the number of FM listeners that was formerly expected by the industry. All in all, it appears likely that FM is not going to receive the financial support it would normally have had at this particular stage of radio's development.

Many of the large cities at the present time have FM stations but it is doubtful if anyone could give a positive statement of the number of stations that are currently on the air. One trade source which CR considers reliable has indicated that at the present time 17 commercial FM stations are broadcasting. Not a few of these stations are either broadcasting the regular AM programs or are using recordings. Such broadcasts, in many cases and as received by many broadcast listeners, would sound just as well when transmitted by AM, as they would through the new FM. City listeners are usually near enough to strong stations so that static and "background noise" are not the serious problems they are with listeners in remote rural districts. There are thus reasons to suppose that the support of FM broadcasting may be no stronger among city listeners than among the rural audiences of Maine, already referred to. However, distribution of the high-quality programs and equipment will first favor the great listening audiences of the big cities, composed of large numbers of people who are prospective purchasers of hair tonic, liniment, canned coffee, dessert gelatine, and digestive remedies. No doubt, too, big cities have a relatively large proportion of that part of the population whose ears are sensitive to the more perfect rendition of good music of which FM is capable.

There are available in the radio market FM tuners (also variously called converters, translators, adapters, etc.) which may be connected to the conventional AM receiver for the reproduction of FM programs. The use of the AM set in this case is similar to its use with a record player, as mentioned earlier in this article. If the AM set is a good one and one or more FM stations are within satisfactory and dependable reception distance (usually about 50 or 75

[Please turn to page 25, column 2]



# Reducing Automobile Driving Hazards

Reviewing National Safety Council's Recent Report and Recommendations on Winter Driving

IN WINTER OR SUMMER, soft mud or clay road-shoulders, particularly after a rain or thaw, can be a source of real danger to the motorist who, through momentary inattention, has allowed his car to run off the pavement onto soft shoulders of the road and attempts to bring it back without using the proper technique. In such circumstances, the brakes **should not** be applied. The foot should be removed from the accelerator and the car allowed to come to an almost complete stop before any attempt is made to pull back onto the hard pavement.

Unshielded lights of various colors and intensities from roadside stands are a serious hazard to night driving. These lights not only frequently conflict with traffic signals but are disturbing and distracting to the driver, whose eyes must constantly make the adaptation between their dark sensibility and bright sensibility, which requires time and is a cause of strain and tension.

It is a sound general rule to drive ten miles per hour slower at night than would be safe and practicable on the same road in the daytime, with the same weather and traffic conditions.

## The Problem of Winter Driving

Because of snow and ice, fog, long hours of darkness, or lack of extra caution, driving in winter has been found much more dangerous than in summer. Death rates are around 40% higher in winter than in summer in the northern part of the country and 20% higher in the southern part. Drivers, therefore, have good reason to strive, particularly in winter months, to drive carefully and skillfully and to keep their automobiles, and especially their brakes, in good condition.

Fortunately competent advice on how to drive safely in winter is now available as the

result of extensive investigations, involving thousands of tests and resulting in conclusions of the greatest interest and importance to consumers, made by the Committee on Winter Driving Hazards of the National Safety Council. The 1940 report of this Council, a pamphlet of 31 pages, should be studied by every driver of a motor vehicle. Single copies are available free upon request from the National Safety Council, 20 N. Wacker Drive, Chicago. Twenty-nine recommendations on mechanical equipment and driving practices have been given (many of these are, of course, as applicable to driving in summer as in winter). In some instances, the recommendations are contrary to popularly held beliefs and practices. Following is a brief summary of the recommendations of greatest importance to drivers of passenger cars. It is not intended, however, that, for any driver, reading of this summary should take the place of careful study of the original pamphlet recommendations of the National Safety Council.

## Mechanical Equipment—Brakes, Windshield Wipers, Headlights, Heaters, etc.

It is particularly important in winter that brakes be kept equalized.

Windshield wipers should be checked for condition of their driving motor and cleaning effectiveness of the blades to be sure that they will be able to sustain the added load during snow and sleet storms. With vacuum-operated wipers, vacuum boosters or tanks are desirable to help maintain constant speed and continued wiping when the accelerator is depressed for necessary passing of a car or truck.

Exhaust manifolds, gaskets, pipes, and mufflers should be checked for leaks, cracks, and other defects; and openings around pedals, steering posts, heaters, etc., should be made tight as a protection against the extra dangers

of carbon monoxide poisoning, arising in winter.

The condition of the electrical system should be checked. The generator should be set for its higher winter charging rate.

Headlights should be checked for proper focus and aim. Light from headlight beams that are aimed too high is reflected back by fog and falling snow and so helps to blind the driver at a time when driving conditions are most difficult.

Winter fog lights have value in fog conditions; they should be placed as low as possible on the front of the vehicle. Clear lenses are preferable to colored lenses.

Tires with good treads have advantages, not on snow and ice, but where wet, slippery pavement conditions are prevalent.

#### Heaters, Defrosters, etc.

Heater-defroster combinations or special fans for directing hot air against the windshield are recommended when of adequate design. Windshield wipers adapted for use on rear windows may be desirable [in CR's opinion, they are essential] on the new passenger cars with their sharply sloping rear windows. Outside left-hand rear-view mirrors are especially useful during winter. Measures should be taken to prevent formation of fog or frost on any of the windows. There are a number of types of frost shields. One type consists of a layer of transparent sheet material, cellophane or other plastic, attached to the inside surfaces of the windows.<sup>1</sup> In another type a film of air is sealed between the surface of the glass and the transparent sheet. The National Safety Council does not think well of frost shields made of glass, though an electric hot-wire type of glass shield may be used where conditions make it necessary. Glass-plate frost shields have the disadvantage of breakability in accidents, and in addition those of the hot-wire type may crack or otherwise damage the windshield under certain circumstances.

Heaters are recommended to avoid the hazards of numbness induced by long periods in cold vehicles. They should be used in conjunction with effective means for preventing formation of frost or fog on inside surfaces of windows or windshields. The manifold type of

heater should not be used unless it is exceptionally rugged [preferably a type furnished by the automobile manufacturer himself—CR] and is frequently checked for leaks and other defects.

Warning flares should be carried in passenger cars as well as commercial vehicles for use in case of breakdown.

#### Tire Chains

Tire chains should be regular equipment with passenger cars where snowy and icy pavements are encountered. The unit or emergency (single) type of chain, while adequate for getting out of snowdrifts and for getting under way on slippery road surfaces, is of no value on curves and of relatively little value for stopping.

Care should be taken to avoid a gap in the uniform spacing of the cross-chains at the place where the ends of the side or circumferential chains are fastened together. An extra cross-chain may be needed to assure maintenance of a four-link spacing (one cross-chain to each four links of side [circumferential] chain).

#### Driving Practices

Before starting trips in winter, investigate weather and road conditions. If at all possible, postpone or interrupt trips when snowstorms or fogs occur.

Keep the load of the vehicle equalized over the four wheels as much as possible to reduce skidding on slippery roads.

Keep the windshield and windows clear at all times no matter how much effort and inconvenience may be required. Lower side windows if necessary to maintain side vision (and open the cowl ventilator, too, for reason given below).

The upper headlight beam should be used on rural highways whenever there are no approaching vehicles within 1000 feet (two average city blocks). The lower or traffic beam should be used when approaching other traffic and when driving on lighted streets and in fog and snowstorms. Polaroid or other non-glare glasses approved by optical experts for the purpose may well be of use at times when glare from snow and ice is excessive. For ventilation, open the cowl ventilator somewhat.<sup>2</sup> Opening of side

<sup>1</sup> If a number of subscribers express an interest in the subject, we shall report in a future BULLETIN on the application of sheet cellophane to the car windows as a partial protection against obscuring of the windows with condensed moisture or frost.

<sup>2</sup> In severe winter weather a car equipped with a heater having a fresh-air inlet, with the fresh-air intake at or near the top of the radiator, will provide sufficient ventilation with only minimal opening of the cowl ventilator and thus has a distinct advantage over cars equipped with an older type of heater without fresh-air inlet. Heaters with fresh-air inlets low on the car body are regarded as less satisfactory from the standpoint of admission of exhaust gases into the passenger space than heaters having a high intake located at the extreme forward end of the car.—CR

windows alone will often decrease pressure within the vehicle below atmospheric, so that if there are leaks of exhaust gases, these can seep into the vehicle through openings in floor boards, etc.

The driver must remember that he may run onto ice unexpectedly in the winter, at points where the sun may not have been able to melt or dry it up, and the speed and manner of driving must always be adjusted to this contingency.

Speeds must be kept comparatively low under conditions of ice and snow. On smooth ice the traction with bare tires may be one-tenth or one-twentieth that of dry pavement. The accompanying table indicates speeds that afford about equal safety under varying vehicle and road conditions.

**TABLE I**  
**Speeds From Which Driver Can Stop in Same Braking Distance on Straight, Level Roads When Dry, Snowy, and Icy**

<i>Road Condition</i>	<i>Vehicle Condition</i>	<i>Rural Speed</i>	<i>Urban Speed</i>
Dry Concrete	Car with good brakes	50 mph	25 mph
Packed Snow of Various Conditions	New tire chains on rear wheels	41 to 33	21 to 16
	Bare tires, smooth or new treads	31 to 25	16 to 12
Smooth Ice with Ice Conditions Varying from Dry to Wet	New tire chains on all wheels	29	14
	New and half-worn tire chains, rear wheels	27 to 20	13 to 10
	Untreated abrasives, e.g., sand or cinders, and bare tires	24 to 20	12 to 10
	Bare tires, smooth or new treads	20 to 15	10 to 7

Contrary to advice often given, do not lower tire pressure or increase the vehicle load over the rear wheels for the purpose of increasing traction on slippery roads. Any slight advantage gained is more than offset by increased danger of skidding.

Tires with good treads give no better performance than smooth tires on snow and icy surfaces, and no reliance should be placed upon tire tread condition for anti-skid protection. Tire chains are the most effective and practical means of increasing skid-safety and traction. The speed with chains on rear wheels only, however, should be no higher on icy curves than with bare tires.

Starting in second gear rather than first gear is usually desirable on slippery surfaces.

Keep a steady foot on the accelerator when driving on slippery surfaces, for supplying too much gas may cause a skid; even sudden removal of the foot from the accelerator may often have this effect under extreme conditions.

### Proper Braking Under Winter Conditions

In stopping on slippery surfaces, let the braking power of the engine in high gear slow the vehicle down to about 10 to 12 miles per hour (on very slippery surfaces slow down in second gear to about 5 or 6 miles per hour before using the brakes) with easy use of the brakes if necessary. The stop is finally made by disengaging the clutch and applying the brakes cautiously.

Light and intermittent application of brakes gives best results. This technique requires skill, however, and the average driver may prefer light but steady application of the brakes, easing up on them if wheels begin to lock and slide.

Under all road conditions, one should slow

down sufficiently before entering curves. Applying the brakes on a curve increases the tendency to skid off the curve. Driving, particularly in winter, should always be so managed that there will be no likelihood of strong braking being required on any curve.

### Recovering From a Skid

There is no sure method of bringing a vehicle under control once it has gone into a skid on snow, ice, or a slippery wet surface. The National Safety Council has indicated in correspondence that it believes that the best the driver can do, once a skid has started, is to make no use of the brake, but to turn his front wheels in the direction in which the rear wheels are skidding. If he is not going too fast, he may succeed in regaining steering control; he will be better off in any case than if he applied the brakes, with the effect of stopping the rotation of the wheels. (Once the wheels stop turning, the car may become completely out of con-

[Please turn to page 23, column 2]



## Something Constructive on Diet Questions

By  
F. J. SCHLINK

WE receive letters from time to time from subscribers in which they say that since so many foods have been mentioned in the BULLETINS as offering a health hazard of one sort or another, they would like to have us outline a safe and wholesome diet that would come within the limits for food expenditures set by the average consumer. Many of our readers also ask us to supply them with suggestions for menus. We have never felt, however, that we would be justified in attempting to outline sample menus, for the reason that so many persons are likely to take such suggestions too literally, feeling they ought to follow them closely even though the recommendations might not be at all adapted to their particular problems. Some persons, for example, may have an allergy for some food which, from other standpoints, is in the most desirable class. Then, too, there are many fortunate persons who have, in a somewhat vulgar popular phrase, "the digestion of a horse," and people so happily endowed quite possibly are in little need of advice from anyone on the diet question. Those whose good health and general well-being are sufficient testimony to the adequacy or suitability of their diet would perhaps be foolish to concern themselves about their eating habits, unless they are aware of some signs of difficulty or physical impairment, whether of the eyes, teeth, defects of complexion, falling hair, chronic constipation, or something else which would lead them to consider more carefully their choice of food.

Many persons, either for reasons of economy or custom, or through ignorance, keep "too close to the edge" in respect to their vitamin intake, and in order not to overstep this safe margin, should guard closely their intake of refined fats, starches, sugars, and other vitamin-free or vitamin-poor foods. They forget that if they get their calories from these refined and vitamin-poor foods, they will necessarily and certainly eat less whole-grain products, meat, eggs, and other natural and complete (or relatively complete) foodstuffs which provide the body with sufficient vitamins and minerals, and proteins of desirable sorts. On the other hand there are those who seem able to obtain all the vitamins they need for health without

any special attention to their diet. It is well established that the vitamin needs of different persons vary widely.<sup>1</sup> For persons who consume any considerable amount of beverages which are mildly toxic or on the verge of being so (e.g., strong liquors), or who eat spray-residue-contaminated fruits and vegetables, the vitamin and protein reserves are drawn upon more than normally, for detoxifying these materials. (Possibly coffee, tea, and tobacco are also in the mildly harmful class.) Possibly there are also hereditary factors involved. At any rate, some persons consume large quantities of undesirable types of foods and beverages and still seem able to retain fairly robust health and to avoid the various minor ailments associated with digestion. Others, perhaps the majority, have learned by long experience that they must choose their foods with care, and that not everything their host, or the restaurant-keeper or dining-car waiter, sets before them may be safely consumed.

It is in answer to the many letters received on the subject that we have tried briefly to sum up here some of the more general recommendations about diet that can be made, and that would be useful or workable for most people, though not necessarily for all. In any case, the opinion of your own physician, who knows your dietetic and health needs from long observation or study, should be given far more weight than the general advice of any person—food expert or otherwise—who has never seen you and does not know your habits of life and work and bodily characteristics and inheritance, and the other important factors that often play a major role in determining any individual's diet needs.

As a basic, general rule, eat fresh meat, fresh eggs, and fresh vegetables and fruits, freshly cooked, to the extent that your income and circumstances permit. These staple foods, normally available almost anywhere, will, if selected with reasonable care and discretion, provide what any healthy person needs in order to maintain health, vigor, and efficiency.

<sup>1</sup> Such variation in human requirements and susceptibilities is well known among scientific men, who are aware, for example, that different individuals show widely varying needs for certain vitamins, just as they have greatly different susceptibilities to the action of poisons. Animal experiments have often shown this characteristic, and in one series of experiments some rats were found which easily survived dosages of nicotine that were intended to be fatal and that killed others.

1. Meat is an important constituent of the diet and one of the most complete and best sources of protein, of an "available" type. Don't be afraid, therefore, to eat plenty of fresh, lean meat—especially beef and lamb—not excessively cooked, simply prepared (preferably roasted or broiled). The cheaper cuts are just as nutritious as most of the choice cuts, and parts of the animal such as the liver, heart, kidneys, pancreas, and stomach (which are far too often thrown away in this country, though prized by other nationalities having an older culture), are excellent sources of vitamins and are also high in nutritional qualities. Other valuable protein foods which may safely be eaten freely are fresh fish (be sure it is fresh!), eggs (cooked), and well-aged cheese. A high protein diet has been found to provide protection against colds, and to prevent or aid in the cure of many conditions of disease, even to assist the body in warding off the harm due to poisons. Such poisons include, as has lately been discovered, such diverse harmful materials as phenol (carbolic acid), the very poisonous soil-and food-contaminant, selenium (chemically akin to sulphur), and the deadly toxin of diphtheria [e.g., see "Dietary Immunity," in *Journal of the American Medical Association*, Feb. 10, 1940, p.493]. In fact, a surprising number of products of the meat-packing industry are now appearing in the medicinal class, and liver (and medicines made from liver) is phenomenal in this respect. (CR plans to present, in a forthcoming BULLETIN, a discussion of some of the latest medical findings in support of a more extensive use of meat in the diet than many nutritionists and home economists have hitherto been inclined to recommend.)

2. Cooked vegetables are an important factor in a well-chosen diet, but there are many for whom certain vegetable foods, especially raw fruits and vegetables, green salads, and fruits and vegetables high in fiber, or roughage, are contraindicated. Physicians find that many overdo the use of raw and rough fruits and vegetables in a mistaken belief that such foods are somehow more wholesome, more endowed with vitamins, or more suited to human digestion than meat, eggs, and other protein foods.<sup>2</sup>

Alida Frances Pattee, in her *Practical Dietetics*

<sup>2</sup> In respect to the problem of bland vegetables, it is difficult to draw a definite line, for the authorities are not in accord on what foods may be regarded as free from objectionable characteristics in respect to amount and type of roughage present, and in regard to any particular vegetable, it is often possible that it may be bland or relatively rough, depending upon its variety and the season at which it is harvested. Individual experience and observation may be the only practicable guides in specific cases.

Spinach, it is now known, may actually cause a negative rather than a favorable calcium balance. The same may be true of other nutritionally very similar greens, though this point has not as yet been investigated.

—With Reference to Diet in Health and Disease (A. F. Pattee, Publisher, Mount Vernon, N. Y., 1940), characterizes the tendency in this way: "The present craze for rough food doubtless brings the gastroenterologist many patients whose indigestion is due purely to the fact that they are trying to digest a vegetable and fruit diet with the carnivorous type of stomach and intestine with which nature has provided them." In making this comment, Miss Pattee doubtless had in mind the fact, well known to clinicians, that different persons have different types of digestive systems, some tending more toward the carnivorous than others; e.g., some persons have intestines which are only half as long as the average man's, and those persons are at a great disadvantage in efforts to eat large amounts of vegetables or other foods containing a considerable proportion of indigestible fiber. Excessive roughage in food unduly accelerates its passage into the large intestine, where it is accompanied by unabsorbed carbohydrate materials subject to intestinal fermentation.

3. Care should be taken not to use excessive amounts of such foods as vinegar, horse-radish, mustard, pickles, pepper, and other spices and condiments—all definitely irritating to the digestive system because of their chemical properties. In somewhat the same class, because they contain sugar in high concentration, are sweets like candy, icings, syrupy fruits, also jams and jellies, hard sauce, etc.<sup>3</sup>

4. Cooked fruits (e.g., stewed prunes, pears, peaches, baked or stewed apples, apricots, or bananas) should be chosen by many instead of fruits in the raw state. One reason is that much of the fruit sold nowadays, unless purchased direct from the farmer, is either picked green and allowed to ripen en route to the market, or has been "ripened" by ethylene gas, so that it is not ripe chemically and nutritionally, but, because of its color or softened consistency, only seems to be tree-ripened. When raw fruits, such as apples, pears, grapes, etc., are eaten with the skin on, the consumer is in danger of taking into his system not only excessive amounts of indigestible roughage, but also considerable quantities of residues from the insecticides containing arsenic, lead, and fluorine that were used for spraying and dusting the orchards and vineyards. This point applies

<sup>3</sup> Dr. Fishbein, of the American Medical Association, mentions that salads with celery, tomato, cucumber, or pineapple may cause trouble, and that beans, cabbage, onions, green or red peppers, and peanuts are also among the foods that are not to be eaten by those who know their digestions are delicate.

also to certain vegetables often eaten raw (celery, lettuce, cabbage, etc.); also to certain vegetables (which include cauliflower, cabbage, and broccoli) whose form or structure is such that they cannot be entirely or approximately cleaned of poisonous spray residue by any method practicable or likely to be consistently used in the home.

5. Most persons need consciously to cut down on their consumption of carbohydrates. It has been established that a diet in which starches and sugars predominate produces a tendency to colds, and definitely favors deterioration of the teeth. So far as practicable, use dark, whole-grain breads and cereals in preference to the white, "refined" kinds. Some people can make only limited use of dark, whole-grain cereal foods because of irritation caused to their intestinal tract, possibly due in many cases to previous overuse of excessive roughage or bran or uncooked fruits and vegetables. Reducing the sugar intake helps to ward off chronic constipation and its attendant disorders, defects of the skin and teeth, kidney trouble, and general poor health. (This precaution refers also to brown sugar, honey, syrups, jams and jellies, ice creams and sherbets, pastries, rich pudding sauces, as well as to the ordinary refined or granulated white sugar used in or on all sorts of fruits and fruit juices, breakfast food, toast, etc.) All the sugar one needs can be gotten from the use of simple desserts such as stewed or baked fruits—unsweetened or only moderately sweetened—plain cake, plain puddings, and custards.

6. Whenever possible, use natural fats (butter, lard, olive oil) rather than processed "refined" fats (hydrogenated cottonseed oil, for instance). The natural fats, contrary to common opinion, are **safer and better nutritionally**, and fats of animal origin are preferable to vegetable fats and oils.

7. As to vitamins, the best advice is not to worry about them. You will get them in sufficient amounts for your body's needs by eating a sufficiency of fresh, freshly cooked foods, **and more cheaply** than by taking vitamin pills and capsules sold in drugstores. Unless you follow some particular dietary cult or eat too often in poor restaurants or use a good deal of factory-processed, ready-prepared, and packaged foods, or too much bread, pastry, or sweets, you are not likely to escape getting vitamins any more than you will fail to take in oxygen with the air you breathe. ¶It is important to

note that the present cult for eating vitamins and special vitamin-reinforced foods has arisen chiefly on account of the practice of consumers, following the suggestions in advertising, of using increasing quantities of foods that have been refined, decolorized, and devitaminized in the process of manufacture.

8. A brief word about cookery. The best—and safest—results are to be had by following simple, traditional, and time-tested methods of cooking, rather than by getting your ideas for menus and recipes out of the flood of such material in women's magazines, publicity for packaged foods, or from promoters of dietary fads. The elaboration of recipes and continual striving for extreme variety in foods are in themselves evidences of abnormality. Very healthy primitive peoples often thrive year in and year out on an astonishingly limited variety of foods and beverages, when those foods are fresh and "whole" (i.e., not refined and extracted or heavily modified in processing or in cookery).

9. Most important of all, remember that the choice of a diet for one's own best conditions of health and good looks (and the two are very closely connected) must remain largely a matter of individual investigation and experiment, with each person determining for himself which foods agree (or disagree) with him or his family. (Food preferences and dislikes and special susceptibilities are probably in part hereditary.) In this effort to find a diet which suits **you**, bear in mind that those natural, unprocessed foods which generations of our ancestors ate and thrived on, are the ones most likely to be good for you now. While workers in science have done much to improve keeping quality and often the economy of man's diet, it is most unlikely that they have made any substantial net or practical improvement in its health-giving qualities. Assured health from proper choice of foods is less common in modern times than in more primitive periods of man's dietary history.

### Price Increase on Binders for CR's Bulletins

The black fiberboard binder formerly sold at cost by Consumers' Research for 25 cents postpaid will in future be available at 35 cents postpaid. The increase in price is necessary because our stock of these binders is exhausted, and the manufacturer's price has been advanced in common with advances on many kinds of office supplies, including paper and envelopes.

The dark red, grained, imitation-leather, non-flexible-cover binder will continue to be sold at its former price of 75 cents postpaid, as long as the present supply lasts.



# Baking Powder

**B**AKING POWDER is a mixture of two or more dry powders. These do not react with each other in the dry state, but when wet, or when wetted, together with application of heat, as in the oven, carbon dioxide is produced. This is the leavening gas which causes biscuits, cakes, etc., to rise. The Food and Drug Administration standard sets a minimum of 12% for available carbon dioxide in baking powder. Sodium bicarbonate (baking soda) is used in all baking powders, and to it is added one of three kinds of acid-reacting substances or a combination of two of them, to make the three types of baking powder now commonly sold, which are as follows:

1. The alum (S.A.S.) or "double-acting" type; this has for its principal active ingredient sodium aluminum sulphate, and usually contains some calcium phosphate, which starts leavening action in the cold mixture. The greater part of the leavening action is produced when heat is applied. The residues, sodium sulphate and aluminum hydroxide, left by this type of powder are respectively laxative and astringent.

2. Baking powders which contain cream of tartar (often used in combination with tartaric acid) as their principal ingredient have their leavening power almost entirely developed in the cold mixture. The residue resulting from the reaction in this type of baking powder is Rochelle salts, a mild laxative.

3. The third and oldest type has for its active ingredient calcium phosphate. About 2/3 of the leavening power of this type is developed in the cold mixture and 1/3 in the oven. The residue of this type of baking powder is phosphate of lime, a mild laxative.

Samples of all three types were tested and with one exception were found easily to meet the Food and Drug Administration requirement for available carbon dioxide, which makes it seem probable that the consumer can usually count on buying a satisfactory leavening agent unless, perchance, he should receive some old or damaged stock. It should be remembered, however, that foods prepared with baking pow-

This article explains, in non-technical language, the chemical and practical actions of baking powders, and differentiates the three well-known types of powders from the standpoint of their desirability for use, and relative healthfulness of the residues left by them in foods after the chemical reactions are complete. The problem of contamination with poisonous substances is also discussed. This contamination reaches a high level in some baking powders, and the reader will note that six of the ten powders tested contained significant amounts of lead, while several contained a compound of fluorine—one in the large amount of over 100 parts per million. Unfortunately, it happened that the powder lowest in lead and fluorine was of the otherwise relatively undesirable alum type.

der suffer a complete loss of vitamin B<sub>1</sub>, as do foods that have been cooked with soda (e.g., vegetables). This deficiency must be kept in mind when there is a choice as between cookery with baking powder and without it (as, for example, making raised rolls or baking powder biscuits).

Baking powders of types 2 and 3 seem the least undesirable. CR has long pointed out that there is some question as to the wholesomeness of type 1, containing sodium aluminum sulphate. Although no conclusive scientific evidence of this is readily available, it may be well to place this type on the list of food substances that might cause harm or are at least undesirable for more than very occasional use. Any undesirable characteristic in a baking powder must also be considered in the light of a possible additional danger from metallic or other poisonous contamination (for example, with lead, arsenic, or fluorine), which is a frequent failing of baking powders of many brands.

Periodic tests of various products are of interest not only as a means of determining current quality, but for comparisons with former quality which they make possible. The baking powder tests reported on here are a case in point and it may be worth while for those who have carefully filed their old CR BULLETINS to turn to the previous report on baking powder, in the issue of May 1937, and compare the test findings with those given here.

There has been some slight improvement in lead contamination since the test reported on in the earlier CR BULLETIN. (As noted at that time, baking powder is used in such slight con-

centration in foods that it was judged safe to double CR's tentative tolerance and consider 0.6 parts per million of lead satisfactory, at least for families making only normal and moderate use of baking powder in cooking.) Four of the ten powders included in the present test were found to contain no significant amount of lead.

Several of the baking powders containing calcium phosphates were found to be contaminated with fluorine in amounts of 10 to over 100 parts per million (ppm). Although there is some evidence that **very minute** amounts of fluorine in the diet may be beneficial to humans, large amounts are known to be poisonous. The tolerance first established by the U.S. Department of Agriculture for spray residue of fluorine on apples and pears was the same as that for arsenic, namely 1.4 ppm. The tolerance for fluorine was subsequently raised to 2.8 ppm and that for arsenic to 3.5 ppm.

As the powder which was most desirable as to lead and fluorine content was of the rather undesirable alum type, no baking powder has been rated higher than B. Intermediate. With baking powders as they are now offered to the public, it seems reasonable to advise that their use should be reduced to a minimum. This advice is particularly important for those families that have been in the habit of consuming large amounts of baking powder breads, cakes, and biscuits.

There seems to be no reason for the presence of lead in the tartaric acid powders but the manufacturers' ignorance of the problem and lack of skilled chemical controls in purchase of materials and management of processes, and it is high time some manufacturer of this or of the phosphate type really went to work on the problem and produced a baking powder that could be recommended without qualifications. With present manufacturing practices, it is quite unlikely that any baking powder will remain uniform over a long period of time with respect to the degree of its contamination with poisonous ingredients. As manufacturers shift their sources of supply of raw materials and their factory processing, the finished products reflect the differences. Until manufacturers exercise strict and continuous chemical control of raw materials and products, as they evidently do not now, a baking powder containing, at present, a large amount of lead or fluorine might, a year from now, have a small amount, and the reverse could also be true.

Prices are for 12-ounce cans unless otherwise

noted in the listings. Ratings are cr41.

#### B. Intermediate

*Davis O K* (R. B. Davis Co., Hoboken, N. J.) 19c. Cornstarch, sodium bicarbonate (baking soda), acid calcium phosphate, sodium aluminum sulphate (type 1). "Double acting." Although of the rather undesirable aluminum-phosphate type, this was the only baking powder tested of which the sample was found to be free from significant amounts of both lead and fluorine. **2**

#### C. Not Recommended

*Ann Page* (Distrib. The Great Atlantic & Pacific Tea Co., N.Y.C.) 12c. Cornstarch, sodium bicarbonate, acid calcium phosphate, sodium aluminum sulphate (type 1). "Double acting." Lead content, above CR's tentative tolerance; fluorine content, greatly in excess of the tolerance established by the Dept. of Agric. for fluorine on fruits. **1**

*Calumet* (General Foods Corp., Chicago) 15c. Cornstarch, sodium bicarbonate, acid calcium phosphate, sodium aluminum sulphate (type 1). "Double acting." Lead content, above CR's tentative tolerance; fluorine content, greatly in excess of the tolerance established by the Dept. of Agric. for fluorine on fruits. **2**

*Clabber Girl* (Hulman & Co., Terre Haute) 8c for 10 oz. Cornstarch, sodium bicarbonate, acid calcium phosphate, sodium aluminum sulphate, and 1/100 of 1% dried white of egg (type 1). "Double acting." Lead content, above CR's tentative tolerance; fluorine, very high. As was noted in a previous report, this was found the least desirable of brands tested. **1**

*K C* (Jacques Mfg. Co., Chicago) 15c for 16 oz. Cornstarch, sodium bicarbonate, acid calcium phosphate, sodium aluminum sulphate (type 1). "Double acting." Was of rather undesirable aluminum-phosphate type. Lead content, above CR's tentative tolerance; fluorine, not found. **1**

*Dr. Price's* (Standard Brands, Inc., N.Y.C.) 19c. Cornstarch, sodium bicarbonate, calcium phosphates (type 3). Lead, not found; fluorine content, greatly in excess of the tolerance established by the Dept. of Agric. for fluorine on fruits. **2**

*IGA* (Independent Grocers Alliance Distributing Co., Chicago) 20c for 16 oz. Cornstarch, sodium bicarbonate, acid calcium phosphate, sodium aluminum sulphate (type 1). Lead, not found; fluorine content, greatly in excess of the tolerance established by the Dept. of Agric. for fluorine on fruits. Failed to meet government standard for available carbon dioxide. **2**

*Rumford* (Rumford Chemical Works, Rumford, R.I.) 22c. Cornstarch, sodium bicarbonate, acid calcium phosphate (type 3). Lead, not found; fluorine content, greatly in excess of the tolerance established by the Dept. of Agric. for fluorine on fruits. **2**

*Royal* (Standard Brands, Inc., N.Y.C.) 37c. Cream of tartar, tartaric acid, sodium bicarbonate, starch (type 2). Lead content, above CR's tentative tolerance; test for fluorine not made since judged unlikely to be present in powders not containing phosphate. **3**

*Schilling* (A. Schilling & Co., San Francisco) 29c. Cream of tartar, tartaric acid, sodium bicarbonate, starch (type 2). Lead content, above CR's tentative tolerance; fluorine, not found. **3**

## Economic Education, or Propaganda for "Causes"?

*[Continued from the inside front cover]*

extensive and elaborated public control of private enterprise and corporate, even individual, business activity. Any such attitudes are the poorest background imaginable for teaching, particularly of young students. (We have seen many graduate students, as well, in the past ten years, who, in spite of their supposed maturity, have shown surprising propensities for "running wild" in speech or in print about the newest and most improbable, temporarily fashionable economic or sociologic ideas.)

The teacher owes it to those who respect his words and trust his fairness and integrity to distinguish between what he knows and can prove, and that which he feels and favors, whether such feelings seem to be a matter of inner conscience or personal prejudice. There can be no doubt that the storm of criticism which is beating about the heads of school administrators and pedagogues will result, as it should, in a sharp retreat of many teachers from the recently popular warm and partisan advocacy of untested social changes.

Some professional educators have gone so far as to assert dogmatically that the important characteristic of modern man in the socio-economic field is **change**; in adopting this position, they confuse the **facts** of rapid change in the natural and exact sciences (e.g., in the development of radio communication, or of methods of electrical measurement) with an **opinion** of a purely prophetic and partisan sort that similarly rapid change in the social order and economic and social relationships themselves is of compelling urgency and importance. Only a clairvoyant—certainly not a competent social scientist—would dare to predict the success or effectiveness of some of the far-reaching plans for social change or revolution which some social scientists and educators have proposed for support and adoption by the nation as the result of their "researches" in fields where only persons with the cultural and educational characteristics of professional politicians might be expected to venture with impunity.

Social scientists often seem to forget that currents which they themselves help to set in motion may be irreversible. The fact that society often cannot turn back from a path which its leadership has taken does not mean that its movements are properly to be called progress. The great vogue of Marxist and near-Marxist thought in collegiate and even in secondary school circles has made revolution seem meritorious, whereas the age-old experience of man has been that with rare exceptions the chief

and dominant effect of revolution is to destroy completely the elements and institutions of society that make for public welfare, order, security, and morale.

Americans need only look at the kaleidoscopic and revolutionary changes which have occurred in nearly every European country in the past ten or twenty years, to decide whether the probabilities for happiness and well-being favor revolutionary economic and social change. All such problems ultimately come back to the status and position of the consumer, for those countries and dependencies where the changes have been deepest and most far-reaching, and where government controls have extended farthest, are the States where the consumer's position today is most abject and his claims and needs most despised or scorned by those in control of the powers of government. F. J. S.

## Reducing Automobile Driving Hazards

*[Continued from page 17]*

trol.) As the National Safety Council well points out, many drivers have too great confidence in their ability to deal with a skid, either by the method just mentioned or by judicious simultaneous use of brake and throttle (a method requiring too much skill and experience for the average motorist to depend upon in an emergency). It must therefore be emphasized that the steering maneuver that has been described, only partially effective at best, may be quite impracticable to carry out in many cases, for it may mean steering into the path of an approaching vehicle or into a deep ditch or ravine. In a word, there can be no substitute for the safe and careful driving which will prevent the initiation of the skid condition.

### Other Problems of Winter Driving

When conditions are bad, don't fail to adjust or alter your route to avoid slippery hills and grades.

Try to keep out of deep ruts in snow or ice. To get out of ruts, slow down to a low speed and make the "switch-out" under momentum, without the application of engine power.

Keep off of street car rails; they are treacherous when wet or icy.

Proceed with extreme caution when approaching another vehicle on a narrow, slippery roadway with snow and ice piled along the edge. Avoid running onto the snow and ice at the edge or you may slide back and into a side-swipe or head-on collision.



## CORRECTIONS AND EMENDATIONS TO:

Consumers' Research Bulletin, May 1939

**Page 13 Bicycles:** *Indian*, Men's Regular B1-10 and Women's Regular B1-14. Delete listing as the Indian Motorcycle Co. is no longer manufacturing bicycles.

**Page 13 Bicycles:** *Elgin 2-Speed Twin 20*, and *Hawthorne New Departure 2-Speed*. Delete listings as these bicycles are no longer listed in Sears' and Wards' catalogs, respectively.

Consumers' Research Bulletin, March 1940

**Page 5 Water Softeners and Alkaline Detergents** (col. 2, para. 2): With stock solutions of water softeners made according to the directions previously given, some inconvenience arose from the chemicals' not remaining completely dissolved, in some cases. It is recommended that proportions of water used be increased as provided by the following directions. Delete 20 lines beginning "A stock solution of trisodium phosphate. . ." and ending at the words "of hardness" and substitute the following: "A stock solution of trisodium phosphate can be conveniently made by dissolving one pound of trisodium phosphate in enough water to make six quarts of solution; shake before using. Four teaspoonfuls of the trisodium phosphate stock solution should be used to soften one gallon of water having a hardness of eighty parts per million; proportionately more is required for water having a greater degree of hardness. If tetrasodium pyrophosphate is used as the water softener, one-quarter pound should be dissolved in ten cups of water. (If the tetrasodium pyrophosphate is labeled **anhydrous**, dissolve it in sixteen and one-half cups of water.) Five teaspoonfuls of this solution are used for softening one gallon of water having a hardness

of eighty parts per million; proportionately more for water having a greater degree of hardness."

**Page 6 Water Softeners and Alkaline Detergents:** Under "Non-Proprietary Water Softeners," change rating of sodium carbonate and sodium sesquicarbonate from A. Recommended to B. Intermediate.

Consumers' Research Bulletin, April 1941

**Page 16 Dictionaries for Scholars:** *Dictionary of American English on Historical Principles*: Statement "Parts 1-5 have appeared" was an error. At the time the BULLETIN article was issued, Parts 1-12 of this dictionary had appeared.

**Page 17 Anthologies or Compilations of Literature for Children:** Change sentence beginning "A similar guide. . ." to read as follows: "Parents may also find useful *Best Stories for Boys and Girls* (The Parents' Institute, Inc., 52 Vanderbilt Ave., N.Y.C.), a compilation of 18 selected stories. 1938. 25c.

Consumers' Research Bulletin, October 1941

**Page 22 Portable Radios:** *Motorola "Playboy,"* Model A-1. Change line 3 to read ("A" battery consisted of 2 standard flashlight cells [instead of 1 cell]). Note: One subscriber has suggested that it may be important to use the new "leakproof" flashlight batteries in portable radio receivers, to reduce possibility of damage to the set through leakage of fluids from old or deteriorated "A" batteries.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933, of Consumers' Research Bulletin published monthly except July and August at Washington, New Jersey, for September 1940—June 1941. State of New Jersey, County of Warren ss. Before me, a Notary Public in and for the State and county aforesaid, personally appeared F. J. Schlink, who, having been duly sworn according to law, deposes and says that he is the editor of the Consumers' Research Bulletin and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit: 1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Consumers' Research, Inc., Washington, New Jersey; Editor, F. J. Schlink, Washington, New Jersey. 2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) Consumers' Research, Inc., a non-profit corporation, not a business enterprise, not operated for profit. Address: Washington, New Jersey. Stock—none. 3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None. 4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him. F. J. Schlink, an editor. Sworn to and subscribed before me this 29th day of September 1941. Mary S. Raub. (My commission expires January 8, 1945.)

Not Confidential—Consumers' Research, Inc.

## Coal-Burning Heating Systems

(Continued from page 10)

*Sears Indestructo*, Sears-Roebuck's Nos. 42—8684 and 8685. *Wards*, Montgomery Ward's Nos. E281—7861 and 7862. *Weil-McLain* No. 67 (Weil-McLain Co., Chicago)

### B. Intermediate

*Fitzgibbons Coal* "80" and "400" Series (Fitzgibbons Boiler Co., Inc., N.Y.C.) These are boilers of high efficiency, but frequent cleaning is needed to maintain the original high efficiency.

*Burnham Round* (Burnham Boiler Corp.)

*Capitol Red Cap*, Sunray, and Round Boilers (U. S. Radiator Corp.)

*National No. 2 Series, Round* (National Radiator Co., Johnstown, Pa.)

*Peerless, EA Series* (Eastern Foundry Co., Boyertown, Pa.)

*Pierce Century* (Pierce-Butler Radiator Corp.)

*Weil-McLain Round* (Weil-McLain Co.)

The following boiler is a water-tube boiler, which has good efficiency and should not give trouble from fly ash; but for anthracite stokers it has rather limited clearance between retort and crown sheet.

*Fuel-Savers, Type DD* (The International Boiler Works Co., E. Stroudsburg, Pa.)

### Boilers for Bituminous Coal Stokers

Efficiency, volume of combustion space, and clearance between retort and boiler crown sheet are all important factors to be considered in boilers for use with bituminous coal stokers.

The preceding recommendations of boilers for anthracite stokers can be used for bituminous stokers except as follows:

The two *Fitzgibbons* boilers under B. Intermediate are rated A for bituminous coal stokers. The *Fuel-Savers* Type DD are not recommended for use with bituminous coal stokers.

This article on coal-burning equipment is a continuation of the article on heating systems in the October BULLETIN. A further discussion of heating systems, including oil burners and additional ratings of coal-burning equipment, will be presented in a forthcoming BULLETIN.

## Radios for Christmas

(Continued from page 14)

miles), enjoyable FM reception should be obtainable in this way for under \$50. (A special and fairly expensive FM antenna, with an extra charge for proper installation, may also be required in locations at any considerable distance from FM stations.) In any case, it would seem wise to start out with that type of equipment rather than with a complete FM-AM receiving set (or an FM-AM unit with phonograph), for then if the FM equipment becomes obsolete rapidly, as it very likely will, the purchaser will not be out so much as if his FM equipment were tied in mechanically and electrically to a radio set or phonograph.<sup>1</sup>

To sum up for the special interest and convenience of the person who plans to buy a radio set in the near future, CR believes that in time FM broadcasts will give much greater pleasure and aesthetic enjoyment than the present AM broadcasts, but even then possibly only for those who are interested in the finest possible reproduction of symphonic or other music difficult to reproduce well. However, until industry finds it financially advisable to back FM strongly and to put on the air worth-while original (not recorded) programs of an inherent quality equal to or better than those transmitted in the past by AM broadcasting, CR subscribers will be well advised not to risk on FM equipment any sum which they consider important. It now appears, after reading a good deal of information about the development of FM over the past year or two, that it may be a long time before the listening public will demand and receive the very high quality programs which FM can provide.

<sup>1</sup> For additional information on most of the items discussed in this article, CR subscribers are referred to the radio section of the current ANNUAL CUMULATIVE BULLETIN, especially to discussions under the headings: "Radio Sets," "Frequency Modulation," "Radio-Phonograph Sets," "Phonograph Needles," "Record Players," "Automatic Record Changers," and "Phonograph Pickups."

## Antidimming Preparations for Automobile Windshields

THE NATIONAL BUREAU OF STANDARDS (Letter Circular 414) has tried various substances that can be used on automobile windshields and windows to prevent "dimming" or fogging by rain, or by moisture condensing on cold glass surfaces inside. One successful material was a mixture of glycerin and some precipitated chalk. Plain glycerin also worked well, especially when applied to a wet surface. The glass surface should be rubbed thoroughly with the antidimming preparation, then wiped clean. Vision through untreated glass was found difficult, as the glass "fogged," while vision through treated portions was impaired very little. The material, used outside, worked for hours when the rain was not intermittent.

Not Confidential—Consumers' Research, Inc.



# CONSUMERS' DIGEST

The enlightened consumer is a necessary  
encouragement to merchandising integrity.

## In The Groove

With Ratings of Phonograph Records

By

WALTER F. GRUENINGER



Two interesting developments have occurred recently in the field of low-priced records.

The first is Victor's offer of two 12-inch *Red Seal* records for one dollar (temporarily half the usual price). That offer will feel out the demand for a 50-cent record, in the hope of placing records in homes where there are none today. So long as the product maintains the high standard of the first bargain pair, *The Emperor Waltz* and the *Ballet Music* from *Faust* (see ratings in the adjoining columns), consumers will hope for more. Other pairs include two songs by John Charles Thomas in combination with arias from *Aida* by Rose Bampton and Gigli; Liszt's *Hungarian Rhapsody No. 2* played on the piano by Sanroma and Dvorak's *Humoresque* and Nevin's *Rosary* played by Primrose on the viola.

The second development is the enormous sale of 33-cent 10-inch *Masterpiece* records which definitely tap a market that won't pay 75 cents. In recent months, *Masterpiece* has increased its list considerably, including a group of 12-inch discs which sell for 54 cents.

To experienced record collectors who wisely demand the best interpretation and recording, *Masterpiece* discs are not likely to appeal. To those who simply cannot afford 75 cents or one dollar for a record and yet want music, the following selected *Masterpiece* discs may prove adequate:

*Traumerei & Meditation* (8549)-*Coronation March & March of the Smugglers* from *Carmen* (8548)-*Die Fledermaus* and *Für Elise* (8547)-*Di Quella Pira* and *Salut Demeure* (8546)-*M'Appari* and *Celeste Aida* (8545)-*March Militaire* and *Scarf Dance* (8542)-*Spring Song* and *Souvenir* (8541)-*Polonaise Militaire*, *Minute Waltz* and *Mazurka* (8540)-*The Flight of the Bumble Bee* and *Impromptu* (8563)-*The Album of Gems*

from Gilbert and Sullivan (A13)-*L'Arlesienne Suite* (Album A19)-*Viennese Waltzes* (Album A17)-Dvorak's *New World Symphony* (Album A15).

I have carefully listened to 37 of these new releases, all anonymously performed, but can suggest as possibilities for any collections only those just listed. In most cases the high frequencies are not clearly recorded, slightly more surface noise than usual comes through, and the musicians' performances are not beyond reproach. Moreover, I believe the *Masterpiece* discs will not wear as well as *Victor Red Seal* or *Columbia Blue Label*.

### Ratings of Phonograph Records

Key: AA—highly recommended; A—recommended; B—intermediate;  
C—not recommended.

	Quality of Music	Inter- pre- tation	Fidelity of Recording
ORCHESTRA			
<b>Bach:</b> <i>Wise Virgins</i> . Sadler's Wells Orch. under Walton. 4 sides, Victor M817. \$2.50. Hodgepodge suite of Bach snips arranged by Walton for a ballet.	C	A	B
<b>Enesco:</b> <i>Roumanian Rhapsody No. 1</i> (3 sides) & <b>Reznicek:</b> <i>Donna Diana—Overture</i> (1 side). Chicago Symph. Orch. under Stock. Columbia X203. \$2.50. Enesco's spirited, earthy rhapsody fares a trifle better on Victor 1701/2.	A	A	A
<b>Gershwin:</b> <i>Rhapsody in Blue</i> (3 sides) & <i>Love Walked In</i> (1 side). Kostelanetz & His Orch. Columbia X196. \$2.50.	A	A	AA
<b>Gounod:</b> <i>Faust—Ballet Music</i> . Boston Pops Orch. under Fiedler. 2 sides, Victor 13830. \$1.	B	AA	AA
<b>Handel:</b> <i>Faithful Shepherd Suite</i> . London Phil. Orch. under Beecham. 6 sides, Columbia M458. \$3.50. Arranged by Beecham from Handel's opera. Simple melodies; rich, sonorous harmonies.	A	AA	A
<b>Ravel:</b> <i>La Valse</i> . San Francisco Symph. Orch. under Monteux (3 sides) & <b>Rimsky-Korsakoff:</b> <i>Bridal Procession</i> (1 side). Victor M820. \$2.50. Ravel's modern, ironic reincarnation of the Viennese Waltz won't please <i>Blue Danube</i> fans.	B	A	A
<b>Rossini:</b> <i>La Gazza Ladra—Overture</i> . Boston Pops Orch. under Fiedler. 2 sides, Victor 13751. \$1.	AA	A	A

Not Confidential—Consumers' Research, Inc.



	Quality of Music	Inter- pre- tation	Fidelity of Recording		Quality of Music	Inter- pre- tation	Fidelity of Recording
<b>Tschaikowsky: Francesca da Rimini.</b> London Phil. Orch. under Beecham. 6 sides, Columbia M447. \$3.50. An expressive trip to the regions below.	AA	AA	AA	<b>Duparc: Chanson Triste &amp; Bachelet: Chere Nuit.</b> Steber (soprano). 2 sides, Victor 18088. \$1.			
<b>CONCERTO</b>				<b>Nicolai: Now Let Every Tongue Adore Thee.</b> Maynor (soprano). & <b>Bach: My Dearest Jesus.</b> Phila. Orch. under Ormandy. 2 sides, Victor 18166. \$1.	B	A	AA
<b>Brahms: Double Concerto.</b> Heifetz (violin) Feuermann (cello). 8 sides, Victor M815. A connoisseur's item of rather pedantic Brahms given a virtuoso performance.	A	AA	AA	<b>Schubert: Die Winterreise-7 songs.</b> Lehmann (soprano). 6 sides, Columbia M466. \$3.50. Not a duplicate but a sequel to Victor M692. Schubert's monumental cycle of 24 songs, chiefly sad, includes many of the greatest ever composed.	AA	AA	AA
<b>Heart of the Piano Concerto.</b> Sanroma (piano). 8 sides, Victor M818. \$4.50. Purchase of this mélange of condensed masterpieces is not advised.	C	A	AA	<b>LIGHT &amp; FOLK</b>			
<b>CHAMBER &amp; INSTRUMENTAL</b>				<b>Herbert: American Fantasy.</b> Victor Symph. Orch. under O'Connell. 2 sides, Victor 36409. 75c.	A	AA	AA
<b>Corelli: La Folia (3 sides) &amp; Bach: Bourree (1 side).</b> Szigeti (violin). Columbia X202. \$2.50. An eloquent performance of music that has captivated listeners for 200 years.	A	AA	A	<b>Strauss, J.: Emperors Waltz.</b> Phila. Orch. under Ormandy. 2 sides, Victor 18220. \$1.	AA	AA	AA
<b>Debussy: Quartet.</b> Budapest Quartet. 8 sides, Columbia M467. \$4.50. Popular, subtle, colorful, modern string quartet played flawlessly.	AA	AA	A	<b>Strauss, J.: 2 Overtures &amp; 2 Waltzes.</b> Orch. under Walter & Szell. 8 sides, Victor M805. \$4.50. The <i>Blue Danube</i> was released abroad in 1934, the others more recently. The overtures rate highest.	AA	AA	B
<b>Hadley: Elegie.</b> Courboin (organ). 2 sides, Victor 18085. \$1.	B	AA	A	<b>Brazilian Songs.</b> Houston (soprano). 5 sides, Victor M798. \$3.50. Fascinating folk material for the connoisseur.	A	AA	AA
<b>Mozart: Serenade No. 11.</b> Eight members of Alumni Orch. Nat'l Orch. Ass'n under Korn. 6 sides, Victor M826. \$3.50. Light, melodious work for oboes, clarinets, horns, bassoons.	A	A	AA	<b>Gems of Melody.</b> Victor Salon Orch. under Joy. 8 sides, Victor P76. \$2.50. <i>Glow Worm, Dark Eyes, Roses of Picardy, Two Guitars, Nola</i> , etc., by a small orchestra.	A	A	A
<b>Rachmaninoff: Suite No. 2 (5 sides) &amp; How Fair This Spot &amp; Floods of Spring (1 side).</b> Vronsky & Babin (2 pianos). Victor M822. \$3.50. Unless you're a pianist, the lovely <i>Romance</i> , complete on Victor 13776, will strike you as the best movement. To be had separately at \$1.	A	AA	AA	<b>'Round the Campfire.</b> Robertson (bass). 8 sides, Victor P84. \$2.50. Fancy arrangements of 8 popular cowboy songs.	A	B	A
<b>Wagner: Die Walkure—Magic Fire Music &amp; Sinding: Rustle of Spring &amp; Grieg: The Butterfly.</b> Sanroma (piano). 2 sides, Victor 18153. \$1.	B	A	AA	<b>Spirituals: Go Down Moses &amp; Lead Me to That Rock.</b> Southern Sons Quartet. 2 sides, Bluebird 8808. 35c.	A	B	AA
<b>VOCAL</b>				<b>Spirituals: Swing Low Sweet Chariot &amp; Ev'ry Time I Feel de Spirit.</b> Thomas (baritone). 2 sides, Victor 2168. 75c.	AA	A	AA
<b>Donizetti: Daughter of the Regiment—Four Arias.</b> Pons (soprano). 4 sides, Columbia X206. \$2.50. Predominantly gay, florid music.	A	AA	AA	<b>Square Dances.</b> Woodhull's Old Tyme Masters. 8 sides, Victor C36. \$3.50. Eight lively tunes, most with calls, recommended for dancing only.	B	AA	AA

## New Device for Testing Floor Coverings



One of the effective ways of testing the durability of linoleum and similar floor coverings is to place various samples in an area which receives heavy traffic. This method of testing, however, has a number of drawbacks. It takes, for example, a considerable length of time to produce sufficient wear to indicate the probable life and comparative durability of the various samples. By the time the test is completed, the patterns or brands may no longer be available on the market.

To obtain useful results more quickly, a large-scale performance test has been evolved by the National Bureau of Standards. In the testing chamber is arranged a circular track 4 feet wide and approximately 40 feet in

diameter, in which the floor coverings are installed for testing. A platform truck equipped with steel wheels is propelled around the track by a "walking wheel" 4 feet in diameter, which is shod with leather during a part of the test and with abrasive cloth during another part.

The results of the test are judged at the end of 48,000 cycles of motion of the testing equipment.

The account of the Bureau's experiment in this field has been published under the title of Building Materials and Structures Report, Part 1, BMS34. Those especially interested in problems of flooring materials and their durability, will find valuable additional technical information in Part 2, BMS43, and Part 3, BMS68, of the same report. Parts 1 and 2 are 10c each; Part 3, 15c, from Supt. of Docs., Washington.

## Ratings of Motion Pictures



This department of CONSUMERS' DIGEST endeavors to supply the critical consumer with a digest of opinion from a number of reviews, ranging from the motion picture trade press to Parents' Magazine, which rates motion pictures not only on their quality as entertainment, but on their suitability in various aspects for children.

It should be emphasized that the motion picture ratings which follow do not represent the judgment of a single person but are based on an analysis of the reviews appearing in 24 different periodicals. (For example, "Hold That Ghost" was recommended by 3 reviewers, rated intermediate by 1, and not recommended by 1.) These periodicals include:

*America, Baltimore Sun, Box Office, Bridgeport (Conn.) Herald, The Christian Century, The Exhibitor, Film News, Harrison's Reports, Liberty, Mademoiselle, Motion Picture Herald, National Historical Magazine, National Legion of Decency List, News Week, The New Yorker, New York Herald Tribune, New York Sun, New York Times, New York World-Telegram, Parents' Magazine, Scribner's Commentator, Successful Farming, Time, and Variety (daily).*

Periodicals will be added to this list from time to time as future exploration of the subject brings to light other journals offering critical appraisals of motion pictures which appear to be deserving of the intelligent reader's consideration.

The figures preceding the title of the picture indicate the number of critics who have been judged to rate the film **A** (recommended), **B** (intermediate), and **C** (not recommended).

Audience suitability is indicated by "A" for adults, "Y" for young people (14-18), and "C" for children, at the end of each line.

Descriptive abbreviations are as follows:

adv—adventure  
biog—biography  
com—comedy  
cri—crime and capture of criminals  
doc—documentary  
dr—drama  
fan—fantasy  
hist—founded on historical incident  
mel—melodrama

mus-com—musical comedy  
mys—mystery  
nov—dramatization of a novel  
rom—romance  
soc—social-problem drama  
trav—travelogue  
war—dealing with the lives of people in war time  
wes—western

A	B	C		
—	6	6	Aloma of the South Seas.....	rom AY
—	3	—	Arizona Bound.....	wes AY
—	1	4	Among the Living.....	mys A
—	7	3	Badlands of Dakota.....	wes AY
—	3	1	Bad Man of Deadwood.....	mus-wes AY
1	2	1	Bad Men of Missouri.....	wes-rom A
—	8	4	Belle Starr.....	mel AYC
—	5	—	Birth of the Blues.....	mus-com AY
—	—	3	Blonde from Singapore, The.....	mel A
1	2	—	Blondie in Society.....	com AYC
1	1	5	Bowery Blitzkreig.....	cri AY
—	4	1	Buy Me That Town.....	com A

A	B	C		
—	4	2	Charlie Chan in Rio.....	mys AYC
—	8	1	Charlie's Aunt.....	com AYC
1	1	3	Cracked Nuts.....	com AY
—	—	3	Criminals Within.....	war-cri AYC
—	2	4	Deadly Game, The.....	war-mel A
1	8	4	Dive Bomber.....	war-mel AYC
—	1	2	Doctors Don't Tell.....	cri A
—	2	3	Down in San Diego.....	cri AY
—	5	—	Dressed to Kill.....	mys AY
1	5	2	Dr. Jekyll and Mr. Hyde.....	mel A
—	6	5	Dr. Kildare's Wedding Day.....	dr AY
—	4	1	Dude Cowboy.....	wes AY
—	2	1	Ellery Queen and the Murder Ring.....	mys AY
—	2	2	Ellery Queen and the Perfect Crime.....	mys AYC
—	7	1	Father Takes a Wife.....	com AY
—	4	1	Feminine Touch, The.....	com A
—	6	—	Flying Blind.....	mel AYC
1	2	—	Forgotten Village, The.....	doc A
1	3	1	Fugitive Valley.....	wes AYC
—	3	1	Gay Falcon, The.....	cri A
—	4	—	Gentleman from Dixie, The.....	mus-mel A
—	6	—	Glamour Boy.....	mus-com AY
—	4	2	Great Guns.....	com AY
—	4	1	Harmon of Michigan.....	dr AYC
—	1	3	Henry Aldrich for President.....	com AYC
1	5	—	Here Comes Mr. Jordan.....	com AY
—	3	2	Highway West.....	mel AY
1	7	2	Hold Back the Dawn.....	mel A
3	1	1	Hold that Ghost.....	com AYC
1	3	—	Honky-Tonk.....	mel A
1	2	1	Hurricane Smith.....	mel AY
1	7	3	Ice-Capades.....	com AY
—	4	3	International Squadron.....	war-mel AY
—	1	2	Kid from Kansas, The.....	mus-mel AY
—	2	1	King of Dodge City.....	wes AYC
—	4	2	Ladies in Retirement.....	cri A
—	3	4	Lady Be Good.....	mus-com AY
—	—	3	Lady Scarface.....	cri A
—	3	2	Last of the Duanes.....	wes AY
—	1	5	Law of the Tropics.....	rom A
—	3	—	Let's Go Collegiate.....	mus-com AYC
—	11	1	Life Begins for Andy Hardy.....	com AY
4	5	—	Little Foxes, The.....	mel A
1	2	1	Look Who's Laughing.....	com AYC
2	10	3	Lydia.....	dr A
—	2	4	Man at Large.....	war-mys A
1	3	—	Man from Montana.....	wes AYC
1	4	—	Married Bachelor.....	com A
—	3	3	Mexican Spitfire's Baby.....	com A
1	5	1	My Life with Caroline.....	com A
—	1	2	Mystery Ship.....	cri AY
—	6	5	Navy Blues.....	mus-com AY
3	—	2	New Wine.....	biog-rom AYC
—	2	2	New York Town.....	rom AY
—	3	—	Niagara Falls.....	com A
—	5	1	Night of January 16, The.....	mys A
—	3	2	Nine Lives Are Not Enough.....	mys A
2	2	1	Nothing But the Truth.....	com AY
—	9	3	Our Wife.....	com AY
—	2	2	Outlaws of the Desert.....	wes AY

A	B	C	
—	2	2	Parachute Battalion.....war-mel AYC
—	3	4	Pittsburgh Kid, The.....mel A
—	1	2	Prairie Stranger.....wes AY
1	1	2	Prime Minister, The.....hist-dr AY
—	1	6	Private Nurse.....com A
—	—	5	Rags to Riches.....cri AYC
—	4	1	Rawhide Ranger.....wes AYC
—	3	1	Reg'lar Fellers.....com AYC
2	2	—	Reluctant Dragon, The.....com AYC
—	4	1	Riders of the Purple Sage.....wes AY
—	4	—	Riders of the Timberline.....wes AY
—	4	—	Riding the Wind.....wes AY
—	5	—	Ringside Maisie.....mel AY
—	1	2	Roaring Frontiers.....wes AY
—	3	2	Scattergood Meets Broadway.....com AYC
—	2	2	Secret of the Wastelands.....wes AY
1	3	—	Sergeant York.....war-biog AYC
—	2	1	Shepherd of the Hills.....nov AY
—	4	2	Sing Another Chorus.....mus-com AYC
2	2	1	Skylark.....com AY
—	2	6	Smiling Ghost, The.....mys AY
1	1	2	Smilin' Through.....mus-rom AYC
3	1	—	Stars Look Down, The.....soc AY
—	3	1	Stick to Your Guns.....wes AY
—	5	—	Story of the Vatican.....doc AYC
—	2	1	Sunny.....mus-com AYC

A	B	C	
—	1	2	Sunset in Wyoming.....wes AYC
1	10	1	Sun Valley Serenade.....rom AY
3	1	—	Suspicion.....dr A
—	7	—	Tanks a Million.....war-com AYC
1	5	5	This Woman Is Mine.....nov AY
—	—	5	Three Sons O' Guns.....com AYC
—	4	1	Tillie the Toiler.....com AYC
—	3	1	Twilight on the Trail.....mus-wes A
—	2	1	Two in a Taxi.....cri AY
—	2	1	Two Latins from Manhattan.....mus-com AY
—	2	1	Under Fiesta Stars.....wes AYC
—	2	4	Unexpected Uncle.....com AY
1	8	—	Unfinished Business.....com AY
—	3	—	Voice in the Night, The.....war-mel A
1	4	—	Weekend in Havana.....mus-com AY
—	1	4	We Go Fast.....com AY
—	2	3	West Point Widow.....dr AY
—	6	6	When Ladies Meet.....dr A
1	10	1	Whistling in the Dark.....mel AYC
—	4	3	Wild Geese Calling.....nov AY
—	1	4	World Premiere.....com AY
2	6	—	Yank in the R.A.F., A.....war-rom AY
2	1	—	You'll Never Get Rich.....war-mus-com AY

## Short Item of Consumer Interest

### "Truth" in Advertising



It is a pity that the average consumer has little time to read various trade journals wherein the businessmen "take down their corporate and public-relations hair" and discuss matters of consumer relationships frankly and forthrightly. If CR's average subscriber read as many trade journals as does CR's editorial staff, pages in this Bulletin might be devoted even more completely than now to interpretations of technical test data, since subscribers would have an adequate background knowledge of customs and practices in the various trades.

One of the cosmetic journals some time ago was discussing just how the hair tonic trade would need to modify its claims and statements in order to comply with the Food, Drug, and Cosmetic Act and the various regulations of the Federal Trade Commission against misleading advertising. A hair tonic label, for example, had been written to read, "Treatment for Falling Hair and Dandruff." After due consideration, it was changed to read, "Treatment for Fallen Hair and Dandruff Scales." Not one customer questioned the label, according to

the report, which went on to say, "The explanation was that you couldn't treat hair—as growing hair—but you could treat it any way you wanted to—good, bad or indifferent—once it had fallen. And that you couldn't treat dandruff but you could treat the scales—once they had fallen." The writer went on to point out that while space on the label was limited, accompanying folders, inserts, etc., presented an opportunity for manufacturers to do "a more thorough and honest educational job on consumers."

At first reading this statement appeared to be in contradiction with the cosmetic journal's commendation of a manufacturer who put out a thoroughly meaningless slogan which might trap into complete misunderstanding of the facts the unwary consumer who read it hastily, or without considering its meaning. The clue, no doubt, when the journal's further comment was read carefully, is to be found in the word "on" before "consumers." As we have noted before, advertising men frequently use words in a specialized sense and not in that readily understood by the average consumer. Educating consumers can be very different from doing an "educational job on consumers."